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TRANSACTIONS

OF

THE ASIATIC SOCIETY

OF

JAPAN.

VOL. V. PART 1.

26011

FROM

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T. A. S. J.

27TH JUNE, 1877.

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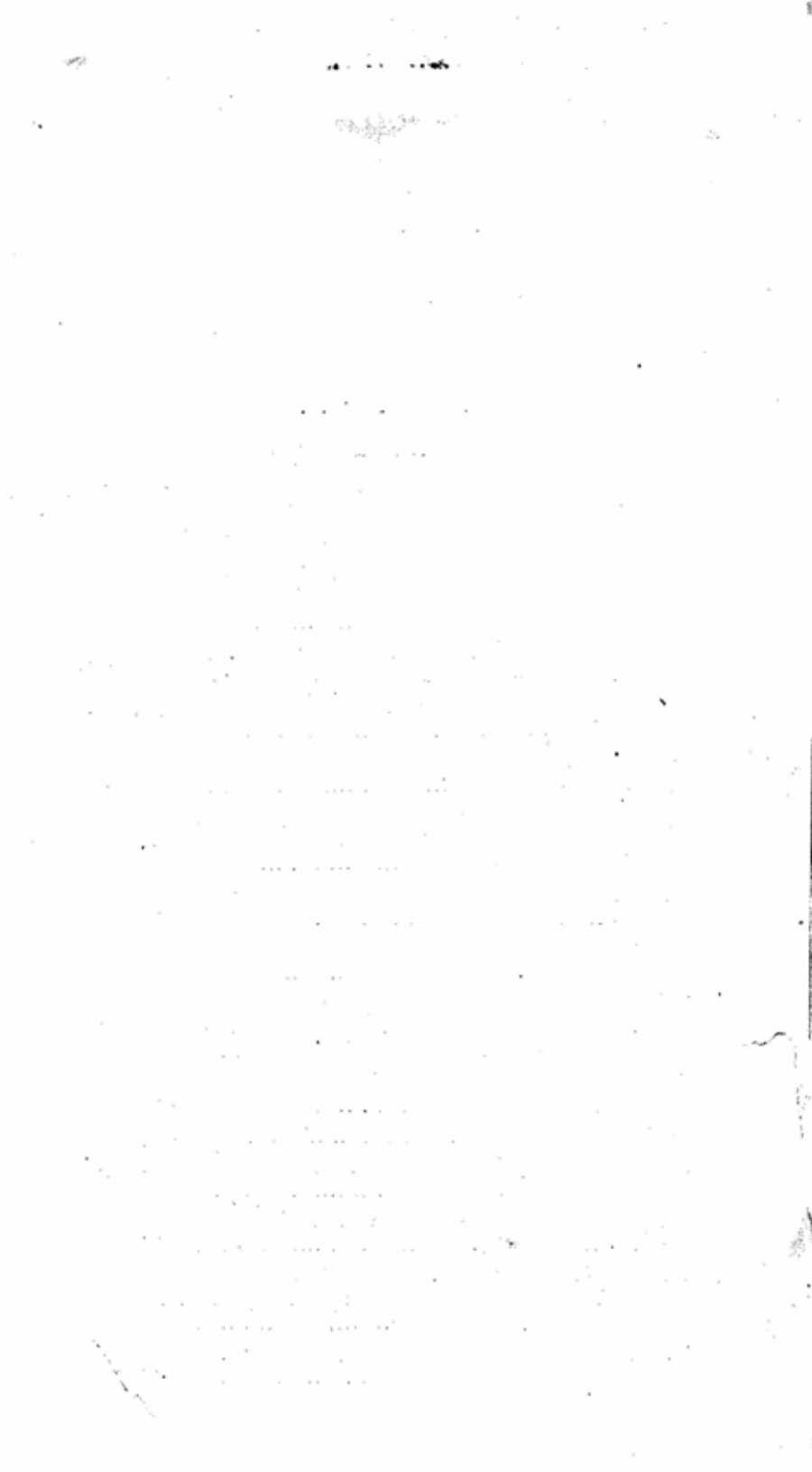
Date. 25/2/57

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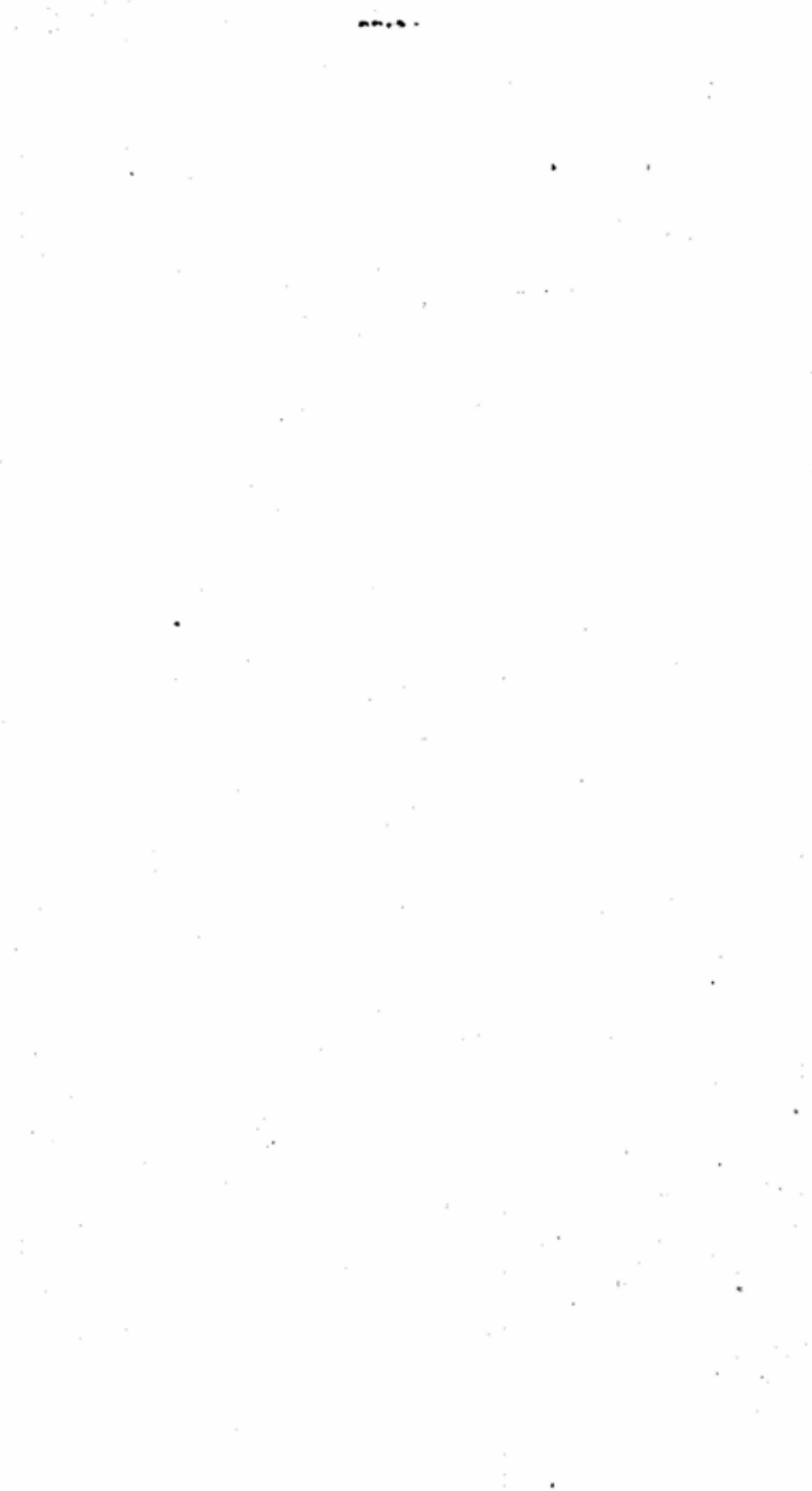
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J. J. KESWICK.

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Recording Secretaries,

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C. H. DALLAS, *Yokohama.*

ASIATIC SOCIETY OF JAPAN.

The Annual Meeting of the Society was held in the Society's Library, Tōkiō Dai Gaku, on Wednesday, the 27th June, 1877, Sir Harry S. Parkes, the President, in the chair. The following members were present: Messrs. Aston, Atkinson, Ayrton, Cawley, Chaplin, Conder, Dallas, Faulds, Grigsby, Hattori, Marshall, McClatchie, Milnes, Mondy, Mori, Murray, Parson, Perry, Smith, Soper, Syle, Veeder, Whitney.

The minutes of the last General Meeting held in Tōkiō on the 30th ultimo, also those of the last General Meeting held in Yokohama on the 13th instant, were read and approved.

The Library Committee reported receipt of some journals and the presentation of some books to the Society by Professor Morse of the Essex Institute, Mass, U.S.A.

The annual report of the Council, which contained the Treasurer's report, was thereafter read by the Corresponding Secretary. Professor Atkinson moved that the report be adopted. This was seconded by Professor Parson, and carried.

Dr. Murray moved that the thanks of the Society be tendered to the Director and Officers of the Tōkiō Dai Gaku for the use of the room which served as the Society's library, and for other rooms of the College. The President added his own expression of appreciation. The motion was seconded by Dr. Syle and unanimously carried. It was moved by Mr. Dallas that the Council be requested to ascertain what building suitable for the purposes of the Society could be obtained in Tōkiō, and

what would be the total outlay, as well for rent as for contingent expenses, and further that the Council be requested to ascertain what would be the funds available for the purpose, and to report on both these heads at the next General Meeting. This motion was seconded by Mr. Aston, and carried.

The election of officers for the ensuing year by ballot was then proceeded with, and the following gentlemen were found to be elected :—

President.—Sir Harry S. Parkes, K.C.B.

Vice-President.—For Tôkiô : Dr. Murray. For Yokohama : J. J. Keswick, Esq.

Corresponding Secretary.—E. M. Satow, Esq.

Councillors.—For Tôkiô :—W. G. Aston, Esq., Rev. Dr. Veeder, Rev. J. Cochran, Rev. Dr. Syle, H. Dyer, Esq. For Yokohama : J. C. Hall, Esq., Rev. Dr. Hepburn, Dr. Eldridge, F. V. Dickins, Esq., Dr. Wheeler.

Recording Secretary.—For Tôkiô : Prof. Atkinson. For Yokohama : C. H. Dallas, Esq.

Treasurer.—Prof. W. E. Ayrton.

A vote of thanks was then accorded to the Chairman and the meeting closed.

REPORT OF THE COUNCIL OF THE ASIATIC
SOCIETY OF JAPAN FOR THE YEAR
ENDING JULY, 1877.

The Council congratulates the Members on the advance made by the Society during the past session both in the increased number of Members and of General Meetings.

Since October of last year thirty-four new Members have been elected, being more than double the number elected last session; of these twenty-five are resident in Tōkiō. Ten General Meetings, including one Extraordinary Meeting, have been held in Tōkiō and five in Yokohama.

The number of papers that have been read have been seventeen, six more than during the previous session. Those read in Tōkiō were,

- 1.—On Japanese Heraldry, by T. R. H. McClatchie, Esq.
- 2.—Modern Shintō Burial Ceremonies, by W. G. Aston, Esq.
- 3.—On the Mission to Rome in 1615 of an Envoy from the Prince of Sendai, by Sir Harry S. Parkes, K.C.B.
- 4.—Japanese Account of the Island of Hachijo, translated by J. H. Longford, Esq.
- 5.—On the Japanese New-Year Celebrations, by Mrs. Chaplin-Ayrton.
- 6.—On the use of Pillow-words and Plays upon Words in Japanese Poetry, by B. H. Chamberlain, Esq.
- 7.—A Summary of the Japanese Penal Code, by J. H. Longford, Esq.
- 8.—On the Modes of Fishing in Japan, by G. Elliott Gregory, Esq.
- 9.—On the Specific Inductive Capacity of Gases, by Professors J. Perry and W. E. Ayrton.
- 10.—Some Meteorological Observations in Japan, by the Rev. Dr. Veeder.

11.—The importance of a General System of Simultaneous Observations of Atmospheric Electricity, by Professors W. E. Ayrton and John Perry.

12.—On a Neglected Principle that may be employed in Earthquake Measurements, by Professors J. Perry and W. E. Ayrton.

And in Yokohama,

13.—Useful Minerals and Metallurgy of the Japanese, by Dr. Geerts, Paper F.—Arsenic.

14.—On the Caroline Islands, by an anonymous author.

15.—On the Early Study of Dutch in Japan, by Mr. K. Mitsukuri.

16.—On the Crania of the Botans, by Dr. Stuart Eldridge.

17.—On Primitive Music, especially that of Japan, by the Revd. Dr. Syle.

The Library Committee reports that the following books etc., have been added to the Library and Museum during the past year.

A Collection of Flint Arrow-heads, presented by Herr Von Siebold.

Ground-plans of the Chief Castles in Japan, 5 vols.

2 Picture-scrolls of Ainos' Customs.

Descriptive Report of Railways in Japan.

Outline History of Japanese Education, by Hon. F. Tanaka.

Livre de Marco Polo, by Pauthier.

Art Céramique, by Ninagawa Noritané.

Asiatic Researches, vols. 1 to 6, 4to.

Daily Bulletin of Weather Reports for 1873, Washington, 13 vols.

Report of Smithsonian Institution for 1876.

Dr. Geerts' Introduction to his larger work.

Elementary Treatise on Steam, by Professor J. Perry.

The works of Professor E. S. Morse, consisting of:—

First Book of Zoology.

The Oviducts and Embryology of Terebratulina.

Address as Vice-President of the American Association for the Advancement of Science.

Tarsus and Carpus of Birds.

Systematic Position of Brachiopoda.

Embryology of Terebratulina Septentrionalis.

Observations of the Terrestrial Pulmonifera of Maine.

In Exchange for the Society's Journal the following Journals, Transactions, etc., have been received from England, France, Germany, Italy, Spain, India, China, the United States and Tasmania :—

The Royal Asiatic Society.—Proceedings.

The Royal Geographical Society.—Proceedings.

The Royal Society.—Proceedings.

The Philological Society.—Transactions.

The Anthropological Institute of Great Britain and Ireland.—Journal.

La Société de Géographie.—Bulletin.

La Société d'Acclimatation.—Bulletin Mensuel.

Le Congrès d'Orientalistes.—Notices.

La Société des Etudes Japonaises.—Annuaire.

Monatsschrift für den Orient.—Wien.

Mittheilungen der Deutschen Gesellschaft.—Yokohama.

Cosmos : from Guido Cora.

Bollettino Italiano degli Studi Orientali, Florence.

La Sociedad Geográfica de Madrid.—Boletín.

The Royal Asiatic Society, Bombay Branch.—Proceedings.

The Royal Asiatic Society, Ceylon Branch.—Proceedings.

The Asiatic Society of Bengal.—Proceedings and Journal.

The Royal Asiatic Society, North China Branch.—Proceedings.

The China Review.

The American Philosophical Society.—Proceedings.

The American Geographical Society.—Proceedings.

The American Oriental Society.—Proceedings.

The American Philological Society.—Proceedings.

The Boston Society of Natural History.—Proceedings.

The Royal Society of Tasmania.—Transactions.

The Council beg to tender their thanks to the Director of the Dai Gaku for the continued use of their room

for the Library, and for the offer of the Hall for large meetings should the Society desire it.

The Library Committee, however, suggest that it is desirable that some steps should be taken to provide the Society with a permanent building of their own. A conveniently situated Hall, suitable for meetings and lectures, and also available as a Library, Museum and Reading-room, would be of great service in consolidating the interests, and promoting the usefulness of the Society.

The present stock of the Transactions in the Society's Library is

| | |
|------------------------|------------|
| Vol. I..... | 45 copies. |
| Vol. II. | 7 " |
| Vol. III, Part 1. | 8 " |
| Vol. III, Part 2. | 112 " |
| Vol. IV. | 74 " |

The Committee would be glad to buy back copies of Vol. II and Vol. III, Part 1, from any who may be willing to part with them.

The following is the Treasurer's Report:

THE ASIATIC SOCIETY OF JAPAN, IN ACCOUNT WITH
MR. J. WALTER.

July 1st 1876, to June 20th, 1877.

Dr.

| | |
|---|----------|
| To Printing Transactions..... | \$278.37 |
| „ Advertising | 58.00 |
| „ Stationery, Postage, and Freight of Transactions to Europe, America and China | 58.32 |
| „ Purchase of book-cases for the Library | 40.50 |
| „ Purchase of books, newspapers, maps and pictures | 29.00 |
| „ The Librarian's wages | 35.00 |
| „ Insurance on \$500 | 15.00 |
| „ Expenses in connection with the meetings in Tôkiô and Yokohama | 13.00 |
| „ Balance to credit of Society | 342.33 |
| | <hr/> |
| | \$869.52 |

| | |
|---|----------|
| <i>Cr.</i> | |
| 1876. | |
| By Balance from last year | \$207.75 |
| „ Subscriptions for 1876 | 10.00 |
| 1877. | |
| By Subscriptions for 1877: | |
| 116 { 63 collected in Yokohama | 319.77 |
| 33 „ „ „ Tokio | 188.08 |
| 11 „ „ „ Hiogo | 55.00 |
| 4 „ „ „ Nagasaki | 20.00 |
| By sale of Transactions through Messrs. Wetmore | 51.92 |
| „ „ „ the Secretaries... | 17.00 |
| | <hr/> |
| | \$869.52 |
| | <hr/> |

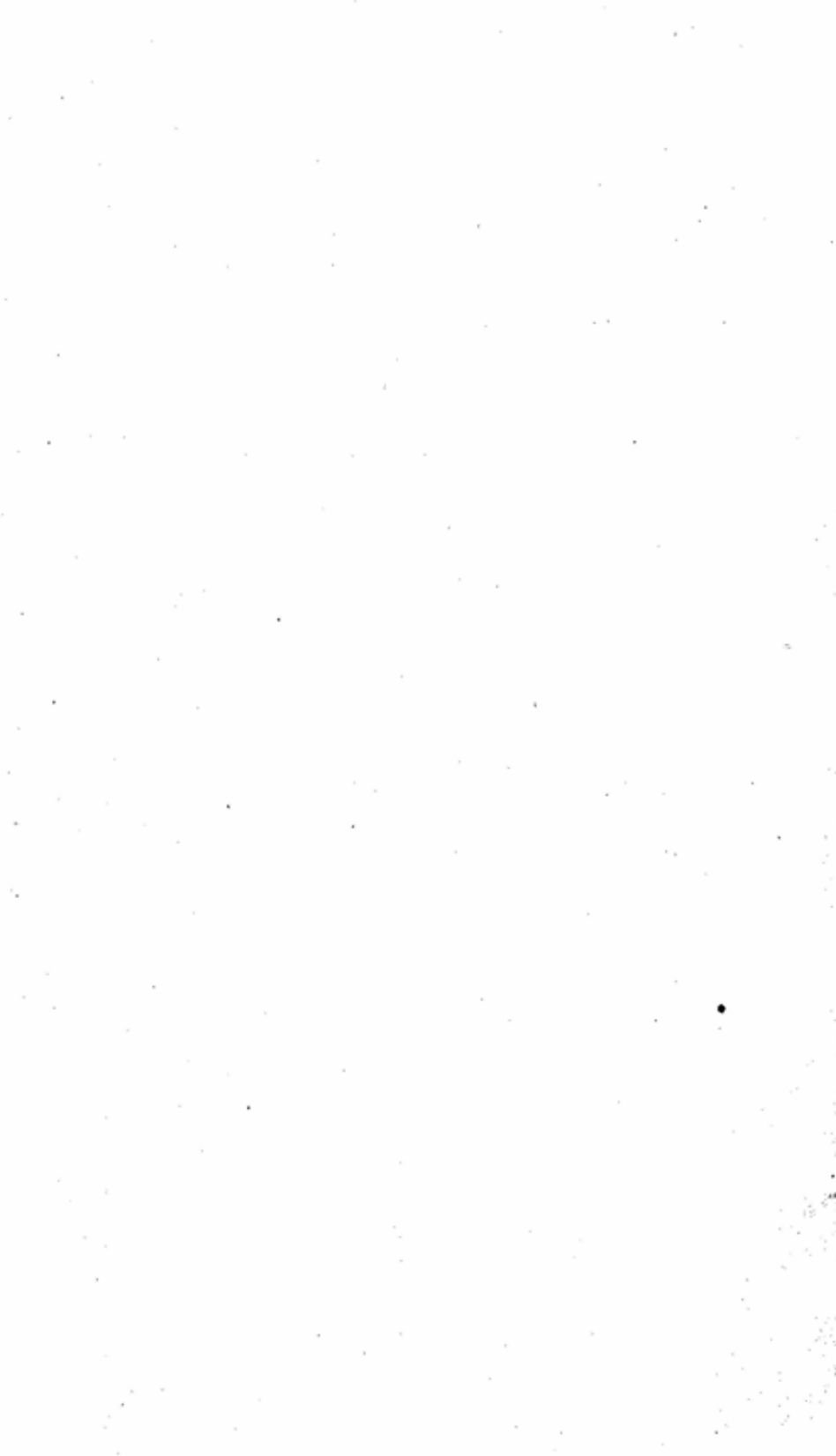
Signed

JOHN WALTER,

Hon. Treasurer.

We have compared the above accounts with the Vouchers and the Bank Pass Book, and find them to be correct, leaving a balance in the hands of the Treasurer of three hundred and forty-two dollars and thirty-three cents.

HARRY S. PARKES, } *Auditors.*
W. E. AYRTON, }



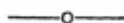
JAPANESE HERALDRY,

BY

THOMAS R. H. McCLATCHIE,

H. B. M.'s CONSULAR SERVICE, JAPAN.

*Read before the Asiatic Society of Japan, on the
25th October, 1876.*



In almost every land where feudalism has existed, Heraldry has enjoyed distinguished honour and careful attention. The annals of every European country, at least, will show conclusively that the "nobyl and gentyl sciaunce," as old Heralds delighted to term it, has become so bound up and intimately connected with History, that the two are hardly separable. Although the fanciful symbols of Heraldry have not as yet been regarded in Eastern climes with the same amount of consideration as amongst the nations of the West, it is nevertheless well known that the germs of the science exist, and perhaps have only lacked the fostering influence of advancing civilization in order to attain to a full growth. Japan, where the feudal system has flourished for an extraordinarily lengthy period, is no exception to this rule, and it is of Japanese Heraldry that this paper proposes to treat.

In comparing Japanese with European Heraldry, it will, as might naturally be expected, at once be seen that the former is remarkably deficient in rule, variety of style, and general character of treatment. So meagre, indeed, is it that it can hardly be deemed worthy of comparison except with the very earliest Heraldry of the West. It is allowed by Heralds that before the adoption of regular

coats-of-arms there existed in Europe merely what were termed Badges, that is, "figures or devices assumed for "the purpose of being borne either absolutely alone, or "in connection with a Motto, as the distinctive cognizance "of an individual or a family." Up to the present time Japanese Heraldry has advanced no farther than this primary state. No such thing as a coat-of-arms proper has ever been known in the country, and the only distinctive marks hitherto in use have been Badges and Crests. This is, in a great degree, owing to the fact that the shield, on which in Europe the arms of the bearer were blazoned, has never been in vogue in Japan. The only piece of defensive armour at all resembling it used in Japanese warfare was a large screen of wood, fixed in an upright position by a moveable rest at the back, so as to form a protection for archers. The smaller shield for the arm would have proved a serious encumbrance to a warrior, as the long Japanese sword is two-handed. Thus, then, the only place where the distinguishing mark could be borne was either on the helmet or on the breast-plate, and in this way crests and badges are the only Heraldic insignia here known. The deficiency, however, has partly been remedied by the frequent instances of these devices being marked upon flags or banners of different colours, and it is a curious fact that a large number of these flags could be accurately described by any European Heraldic scholar, in the set phraseology peculiar to his art, so that the shape, colour, etc., of the flag and the device could be correctly delineated from the mere written details. But as a general rule the Japanese do not adhere to those strict laws regarding the combination of metals and tinctures observed in Western lands; they care but little how often the colour of their symbols may be altered, provided only that the general outline of the device be preserved; and this alone is quite sufficient to show that their system of Heraldry is as yet far from perfect. In spite, however, of their deficiency in regard to these most essential points, they still possess various rough laws and are guided by

certain usages which show that there exist, without doubt, the rudiments of a system that may eventually be matured into something approaching more closely to regular Heraldic art.

How and when Badges first came into use in Japan is a matter enveloped in considerable obscurity. The popular tradition seems to be that they took their origin from the patterns embroidered upon, or woven into, the state garments of the old court nobles at Kiyôto; and in support of this theory there is adduced the fact that the Chinese character used in writing to express the word Badge or Crest (no distinction being made between the two) is a compound of two other characters signifying "thread-pattern" or "thread-writing." The embroidered patterns alluded to were generally circular, and hence it comes to pass that nearly all Japanese Heraldic devices are more or less circular in shape. At the very first, a difference was made in the size of the Badge, according to the rank of the wearer. Those of nobles and officials of high position were no less than three inches in diameter, while subordinate officers and persons of lower rank used smaller ones, down to the ordinary gentry, in whose case the diameter was but one inch in length. In later times, however, the Badges were very seldom borne larger than the size last-mentioned, except when blazoned on flags or on breast-plates. A miniature facsimile of the Badge was generally worn on the helmet as well, being placed in the front, and often between the horns of a crescent-shaped piece of metal called *tatemono*, used as an ornament thereon. Thus it would appear that the Japanese owned no distinction between a Crest and a Badge. According to the flag or the breast-plate, so did the tincture of the device vary. On a dark-coloured ground it would be blazoned in gold, white, or red; while on a lighter ground, black or red were generally used. Sometimes families of rank assumed to themselves, as a kind of livery, a special colour for their banners or war-surcoats. The "Nihon Gu'aishi," a standard history of Japan, states with regard to Taira no Takamochi that "his

"descendants for generations were military vassals (of the "Crown). They used a red flag." And again, speaking of Minamoto no Tsunémoto, it is remarked in the same work that "his descendants were military vassals from generation "to generation, and they used a white flag." The two warriors to whom allusion is here made lived in the early part of the 10th century, and were the founders of the two rival families of Hei and Gen, or Taira and Minamoto; and these colours were constantly displayed, in after years, in civil conflicts that caused as much bloodshed as the English wars of the Red and White Roses. It is, too, a well-known fact that these two families had also their distinctive cognizances, and the Badges of many of their chief retainers have likewise been handed down to posterity, so that it would appear to be a perfectly reasonable conjecture that a kind of rude Heraldry had existed in Japan far earlier than the year 900 A.D.

In Japan, as in European countries, the badges were at first assumed at will by anyone wishing to select for himself and his family some distinguishing mark. In later times, apart from such assumption, there are to be found instances of badges being conferred by a chieftain upon such of his retainers as had distinguished themselves by bravery in fight or by some other deed of merit. As a general rule, however, each man selected his own, and this custom has continued until the present date, so that it is by no means uncommon to see members of the same family wearing different badges. A good instance of a badge being "conferred" is to be found in the history of the family of Kumagae Naozané, one of the chief retainers of the Minamoto clan. At the battle of Ishibashiyama, near Hakoné, in 1181 A.D., Minamoto no Yoritomo was signally defeated by the Taira forces, and fled away, hotly pursued, accompanied by only two or three of his followers. He concealed himself in a hollow tree on the mountain, to avoid the enemy's scouts, and it is said that one of the latter actually thrust his bow inside the tree to ascertain if any one were hiding within it.

It is narrated in the "Gempei Sei-sui-ki," or "History of the Rise and Fall of the Gen and Hei," that the bow "touched the sleeve of Yoritomo's coat of mail, whereupon "he prayed fervently to Hachiman (the god of war), when, "as if for a sign, there flew forth from the hollow tree "two wood-pigeons, clapping their wings loudly." The pursuers, on seeing the birds, gave up the idea that anyone could be concealed in the tree, and, a heavy shower of rain coming on at the moment, they abandoned the pursuit. The guide-book to the Nakasendô says, in speaking of the town of Kumagaë,—the residence of Naōzané, through which that road passes,—that, "as a reward for his (Naōzané's) services at the battle of Ishibashiyama, "when he concealed Yoritomo in a fallen tree, he received "from the latter a curtain marked with the mistletoe and "pigeon badges." It may be mentioned in this connection that a badge so conferred was not always worn by the recipient in preference to the one which might already be possessed by himself, but could be used at option either as the real or second badge. As an instance of the "assumption" of a badge, there may be quoted the origin of that borne by the family of Niwa, holding one of the Northern daimiates. It is said that an ancestor of this family once went out to battle, bearing as a distinctive mark what was termed a *sashimono*, that is, a small rod, fastened into a socket at the back of the cuirass, which was usually adorned with a small flag bearing the badge of the wearer suspended from a slender cross-bar fastened at one end to the main staff. That of Niwa, however, was only ornamented with eight thin strips of metal hanging from it. When the fight was over, it was found that no less than six of these had been hewn away, while the remaining two were bent one across the other in the form of the letter X, or a "cross saltire,"—and this figure was consequently assumed by Niwa as his family badge. Another version of the tale, however, has it that the warrior in question killed so many of his adversaries that, after wiping his sword, according

to Japanese custom, upon the left knee of his wide trousers after each several encounter, the stains of blood eventually left upon the garment two broad lines in the shape just described. This latter explanation is given by some of the former retainers of the Niwa family, and therefore is probably the more correct of the two. Again, the badge borne by a family named Narita, formerly adherents of the above-mentioned house of Niwa, represents two parallel lines drawn through a circle, and extending for some distance beyond the circumference. The founder of this family, so the tale runs, was once engaged in one of the frequent wars on the Eastern marches of Japan, and his provisions having failed, was put to great straits to obtain food,—a battle being imminent at the time. Casting his eyes around, he espied in the mountains a small shrine, and entering this, found laid therein as an offering a bowl of rice and a pair of chopsticks. The pangs of hunger overcame any religious scruples that Narita may have possessed; he seized the bowl and devoured the rice, and refreshed by this timely sustenance, went forth and bore himself gallantly in the fight. In it he earned considerable distinction, and ascribing this to the favour of the deity whose shrine he had invaded, he took for his badge the circle and two lines, as a rough delineation of the rice-bowl and chopsticks. The above-quoted instances will suffice to give a general idea of the manner in which crests or badges were conferred or assumed in the ancient days of Japan.

Most of the great nobles, as may be seen by a glance at any Japanese list of *daimiōs*, possessed three badges, whilst those of lower rank had two, and ordinary *samurai* but one, except in some few instances. Of these, one was always termed the *jō-mon* or "fixed badge" of the family, the others being styled *kaē-mon*, or badges worn instead of the chief one, and these were used on occasions when it was not absolutely necessary to appear in full dress. In time of war, the soldiers in Japan always fought in full armour, and then the crest or badge was of course a conspicuous mark whereby to distinguish friend from foe in the battle-

field. It was then displayed on the breast-plate, the helmet, and the small flag attached to the *sashimono* as mentioned above. It was also marked upon the curtains usually fastened to upright posts so as to form an enclosure around a military encampment. In time of peace, the badge was as now, generally worn in five places on the upper garment, namely, at the back of the neck, on each sleeve, and on each breast. In some instances, however, the number was increased to seven, by the addition of two upon the collar or margin of the garment, just over the chest, and in a line with those on the breasts. Apart from the clothing, nearly every article of common use was marked in like manner. The badge appeared on the lacquered hat, the fittings of the swords or spear-shafts, the *norimono* or palanquin, travelling-boxes, lanterns, etc., of every Japanese gentleman; and, in the case of a *daimiō*, these distinguishing marks were noted down with such accuracy in the lists of nobles, that by the insignia of a train or retinue on any of the highroads, the name and the rank of their lord could at once be determined. Of so great importance was this deemed in a country where etiquette required the observance of various details of ceremony when two nobles and their followers met on the road, that there were generally placed in the van of every procession two or three well-informed retainers,—a kind of Heralds, as it were,—whose special duty it was to take note of the insignia of any train coming from an opposite direction, and pass word down their own ranks as to the due ceremony to be observed under the circumstances. These Heralds had by no means an easy duty to perform, for they fell into great disgrace if they failed in what was required of them. It was customary in these trains for the whole of the inferior attendants to wear their lord's badge on their mantles, to facilitate recognition by other travellers. On the castle residences of Japanese nobles in the country, and also on their *yashikis* or fortified mansions in Yedo or elsewhere, the badge of the owner was conspicuously displayed. It was placed over the large gateway, the second badges, if such exist-

ed, being placed alongside in many cases ;—the large tiles at the extremities of the roof-ridge and end-beams also were marked with it, and in some cases the whole of the smaller tiles along the edge of the roof were ornamented with the second badge. It was not very usual to place the chief badge on these smaller tiles. If a *Daimiō* changed his residence, these tiles, so marked, were generally removed, but if not, the badge was always carefully erased, the space being left blank if the new occupant did not care to fill it with his own cognizance. Sometimes, as an especial mark of favour, a feudal chieftain would permit one of his retainers, whom he wished to highly honour, to make use of his own badge ; but in such rare instances there was always given to the retainer a *haōri*,—the upper mantle worn by the military class,—marked with the badge, and the privilege lasted only so long as that particular garment was in existence. Nor was the recipient of this favour permitted himself to mark the badge upon any other part of his clothing, and it does not seem that any *hereditary* honour was attached to the gift. From the above remarks it may be seen that in the case of nobles, at least, there existed some kind of restriction preventing the assumption of a family badge belonging to another house. No badge was worn by the principal during the ceremony of the *hara-kiri* ; nor again, at funerals, was any marked on the white mourning garments. At marriage ceremonies, in very high families, neither the bride nor bridegroom wore a badge on their clothing. The regulations as to women's badges have always been rather vague, but as a general custom it would seem that they commonly wore that of their own family, even retaining it after marriage, though then the badge of the husband's family was occasionally taken in preference.

It may here be interesting to note the devices borne by some of the chief families of Japan, as selected from the list of nobles. But firstly the badges of the Imperial line claim our attention. They are two in number. The first is a representation of the *kiku*, or chrysanthemum





flower, and is usually delineated by sixteen petals, conjoined, and rounded at the outer extremities, issuing from a small circle in the centre. Some Japanese, however, state that this is not the chrysanthemum, but is intended as a representation of the sun, so as to bear some connection with the red sun on the national flag, of which mention is made below. But this latter theory seems wholly unworthy of credence, as the *kiku* is frequently represented as a *double* flower,—that is, with the rounded extremities of sixteen other petals showing, from below, in the interstices at the ends of those drawn in the foreground. It is, nevertheless, a fact worthy of remark, that in European Heraldry, when the Sun is blazoned as “in his splendour,” *i.e.* irradiated, the rays are nearly always *sixteen* in number, though they are then always drawn with *pointed* extremities. The *kiku* is used as a mark on the hilts of the swords forged by the Emperor Go-Toba, who ascended the throne in 1186. The second of the Imperial badges is a representation of the leaf and flower of the *kiri*, or *Paulownia Japonica*, as it is termed in botany; it displays three leaves, and three flowers, each of the latter consisting of a slender stem with the buds attached. The central stem bears seven buds, and those on the sides five each;—thus this badge is termed in Japanese the “*go-shichi no kiri*,” or “five-and-seven *kiri*.” Many other families bear the *kiri* badge, but, as a general rule, the buds are but five in number on the central stem, and three on each of the others,—such a one being styled “*go-san no kiri*,” or “five-and-three *kiri*.” This law regarding the difference in the number of buds is not, however, observed very strictly. The small square banner usually borne before the Mikado when he drives out in public, bears the *kiku* badge in gold upon a ground of red and gold brocade. Thus allusion is made, in a popular song written at the time of the expedition against Chōshiu in 1866, to the “Imperial Standard of Brocade,” and during the troubles in Yedo in 1868, the “loyal troops” earned the nickname of *kingiré* from the *shreds of brocade* which they wore

as a distinguishing mark upon the right shoulder. The *kiri* badge, embroidered in gold, is now every day to be seen upon the uniforms of Japanese officials. But, to speak of the badges of some of the nobles, the following short list will suffice as a sample:—

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|---|---|--|
| I.—TOKUGAWA, (late <i>Shōgun</i>) | { | Three leaves of the hollyhock, within a circle; the points of the leaves meeting in the centre. |
| II.—MAEDA, <i>daimiōs</i> of Kaga. | { | A plum-blossom of five petals,—each of circular shape. |
| III.—SHIMADZU, <i>daimiōs</i> of Satsuma. | { | The ring of a horse's bridle-bit. |
| IV.—YAMANO-UCHI, <i>daimiōs</i> of Tosa. | { | 1st.—Three leaves of the <i>kashiwa</i> (a kind of oak) within a circle. 2nd.—Two horizontal and parallel lines. 3rd.—The same as the 1st, but without the circle; the stems of the leave being in each case joined in the centre, the ends pointing outwards. |
| V.—KURODA, <i>daimiōs</i> of Chikuzen. | { | 1st.—A black ball. 2nd.—Three flowers of the <i>fuji</i> , or wisteria, conjoined in the centre, and flexed in circular form. |
| VI.—HACHISUKA, <i>daimiōs</i> of Awa, in Shikoku. | { | 1st.—Same as Tokugawa, only of different colour. 2nd.—The figure called a <i>manji</i> , within a circle. 3rd.—The same without the circle. |
| VII.—ARIMA, <i>daimiōs</i> of Chikugo. | { | 1st.—The gentian leaves and flowers, arranged in a peculiar circular form. 2nd.—The figure called <i>mitsu tomoyē</i> . |
| VIII.—IKEDA, <i>daimiōs</i> of Bizen. | { | 1st.—A butterfly "displayed," or, with wings spread open. 2nd.—Two similar butterflies, fronting each other. |
| IX.—NAMBU, <i>daimiōs</i> of Morioka, in the province of Mutsu. | { | 1st.—Two Cranes, with wings extended, fronting each other, within a circle. 2nd and 3rd.—Four lozenge-shaped figures, arranged so as to form one large lozenge. |

- X.—MŌRI, *daimiōs* of Chōshiu. { 1st.—The leaf and flower of a water-plant called *omodaka*.
2nd & 3rd.—A horizontal line, with three balls, or stars, arranged underneath it in a pyramidal form.
- XI.—DATE, *daimiōs* of Sendai in the province of Mutsu. { 1st.—Two sparrows, with wings extended, fronting each other, within two branches of the bamboo arranged in circular form.
2nd.—The peony leaf and flower.
3rd.—A circle, enclosing three perpendicular lines.
- XII.—ASANO, *daimiōs* of Aki. { 1st.—The feathered ends of two arrows, crossed, within a circle.
3rd.—The same, without the circle.

The Tokugawa badge above-mentioned was delineated on flags as either gold or silver upon a blue ground. This badge is stated in the "Nihon Gwaishi" to have been adopted by Kiyoyasu, father of the famous Tokugawa Iyēyasu, in the year 1529. Kiyoyasu, returning from a successful expedition against the eastern portion of the province of Mikawa, was entertained by one of his vassals, named Honda Masatada, at the latter's castle of Ina in the above province. During the feast, Honda presented his lord with some food placed on a small wooden stand upon which were laid three leaves of the hollyhock. Kiyoyasu, observing them, exclaimed, "upon my return in triumph "I have received these leaves; from henceforth I will "adopt them as my badge." A less authentic version of the tale has it that the Tokugawa badge was originally taken from that of the house of Honda, who bore as their cognizance three similar leaves, but with stalks attached and placed perpendicularly within the circle. Iyēyasu, it is said, was once admiring this badge, when Honda Tadakatsu, the son of the above-mentioned Masatada, begged him to adopt it as his own. "I should like to do so," said Iyēyasu, "but I am sorry (*habakari*) to deprive "you of it." "Then take the *ha bakari* ("the leaves alone")" was Honda's punning retort, "and I will retain "the original badge of both stalks and leaves." Iyēyasu

did so, and thus assumed the modern Tokugawa badge instead of that previously borne by his family,—a horizontal black line within a white circle. The “black ball” of Kuroda was originally a circle within which were drawn several black cranes. This badge was called the *sem-ba-dzuru*, or “thousand cranes,” but as it was found to be far too great a labour to depict the birds accurately in each several case, it eventually assumed the present form. This is the badge displayed in the former Chikuzen *yashiki* at Yedo, now used as the Department of Foreign Affairs;—the Second Badge, the wisteria, being marked on all the small tiles along the edges of the roofs of the outer building. The *manji* badge of Awa is curious. This figure is drawn thus, , and sometimes, but less frequently, thus, . It is taken from a Chinese character meaning “ten thousand,” and is a Buddhist symbol, supposed to be emblematical of good luck. It is frequently to be seen on Buddhist temples, as a sign of *Fudô Sama*, or the “motionless Buddha.” It was often marked upon the lids of coffins, being supposed to act as a charm to protect the corpse against the attacks of a demon in the shape of a cat, called *ku'asha*, which was said to seize and mangle the dead bodies of human beings. An exact facsimile of this figure is also to be met with in European Heraldry, but it is a very rare ‘charge.’ It is there termed a “fylfot,” but nothing is known as to its origin,—the only description given in Heraldic works being that it is “supposed to have been a mystic symbol.” The *mitsu-tomoyé* of Arima, is shaped thus, , being—as its name implies— a triplicate representation of the single *tomoyé*, . Many different explanations are given in regard to this figure. One is that it represents “snow falling whirling down” (a common expression in Japanese descriptions of a snow-storm),—another, that it is intended to depict waves dashing up and breaking against a rock,—and a third that it is a delineation of the *tomo*, or small leathern glove, consisting of loops for the fingers attached by thin

strips of leather to a broader piece fixed on the back of the hand, as worn in ancient times by Japanese archers. The last of these three would seem to be the explanation most worthy of credence. The *mitsu-tomoyé*, like the *manji*, is also frequently used as a symbol of good-luck, and is to be seen constantly on the small tiles of the *yashikis* in Yedo. As a rule, only the one figure is thus shown, but in some instances it is surrounded by a circle of small balls, varying at times in number. On a gateway in the post-town of Hodogaya, on the Tōkaidō, to the west of Yokohama, appears a device of three single *tomoyé* interlaced. The crossed arrow-feathers of the *daimiōs* of Aki may be found, beautifully carved, on the tomb of Asano Takumi no kami, a cadet of that house, in the cemetery of the temple of Sengakuji in Yedo.

The above are but a few of the badges of the noble families of Japan. Apart from these, there may be observed on all sides exceedingly numerous devices, widely different in style and character. It is, of course, utterly impossible in a short paper to give any details of these, but any one feeling interested in the study of Japanese Heraldic art will find it an easy matter to obtain many curious specimens of badges. In a country gifted like Japan with luxuriant vegetation, it is not surprising that by far the greater number of devices should consist of representations of flowers, leaves, fruits, blossoms, grasses, etc. Amongst these may be mentioned the *kiri* leaf and flower,—the rose (always drawn exactly as in European Heraldry),—the flowering gentian (*sasarindō*),—the chrysanthemum leaf and flower,—the creeping wisteria,—the *kashiwa*,—the hollyhock,—the sorrel leaf,—the peony,—the orange,—the clove,—the pear,—the plum and cherry blossoms,—the bamboo,—and the radish (*daikon*). The animal kingdom is also well represented, though it is a noticeable fact that there do not exist any badges showing portions of the human body, so often to be met with in other countries. Nor, again, are there found many quadrupeds, the solitary instance, at least in the devices of the nobles, being that of a black horse, tethered

to two stakes, borne by the family of Sōma, formerly holding a small *daimiate* in the province of Mutsu. There certainly is another figure, termed the *kara-shishi*, which is supposed to represent a lion, but it bears no resemblance whatever to that animal, and so may be set down as a mere fanciful symbol. Birds and insects, however, are favourite subjects. Among these are found cranes, geese, pigeons, sparrows, butterflies, and wasps. The celestial objects worn as badges are the sun, moon, and supposed representations of stars and clouds; these, however, are very rare. As natural objects, the only two instances are running water, and a mountain-peak. The water is always delineated in conjunction with some other device, as for instance, by the family of Kusunoki, a chrysanthemum flower issuing from a stream of water,—by that of Nakayama, the sun issuing in like manner,—and again, by that of Midzuno, an *omodaka* plant similarly depicted. The only example of a mountain in the list of *daimiōs* is the badge of a small *daimiō* named Aōki Gengorō, formerly lord of the small castle-town of Asada, near Ōsaka, in the province of Settsu, which badge displays a perfect delineation of the summit of Mount Fuji, showing three of the peaks, issuing from clouds. After these come a host of miscellaneous devices, of every possible shape and design,—such as fans (sometimes bearing some smaller charge, and sometimes plain),—the framework only of fans,—ladders,—wheels,—fences,—mallets,—cash,—arrows,—hats,—gateways,—bridle-bits,—Chinese characters, etc., etc. As smaller and simpler designs may be noted circles, lines, squares, hexagons and lozenges, several of these being in some cases conjoined so as to form one badge. In a few instances, very complicated devices are formed by combination of two or more totally different objects, as for instance, three leaves conjoined in the centre and pointing outwards, placed above three others arranged in the form of a triangle, the whole within a circle;—and on one of the small *yashikis* in Banchō, Yedo, there yet remain tiles marked with a strange badge showing one-half of an eight-spoked wheel, between four

broad leaves, two on either side,—the whole being enclosed within what appear to be the stalks of some plant bent into circular form.

It is just possible, from this example, that there may have existed in Japan some vague idea of what is termed Heraldic Marshalling, *i.e.*, the combination of two or more Heraldic compositions as to form one single composition, but there are certainly no definite rules on this important point.

There exists in Japan some crude notion of "differencing" Heraldic devices, that is to say, modifying or adding to the original so as to indicate the difference between two or more families sprung at the first from the same stock. The common system of "differencing" by colour could not be carried out in the ordinary use of Japanese badges, as, when these were worn on clothing, they were always marked in white; but in the case of flags, etc., that admitted of a change in the colour of the grounding, the task was rendered more easy of accomplishment. Thus, the hollyhock badge of the Tokugawa house was marked, in the case of the head family, in gold or silver upon a blue flag, while the kindred houses of Mito, Owari, and Kii, bore each some modification of the same. That of Mito was black on a white flag; Owari's white on a flag striped horizontally white and black; and Kii's white on a blue ground, the interstices of the leaves being filled in with black, and not allowing the ground colour of the flag to be visible. The delineation of the badge itself was, however, identical in the whole four cases. Other instances might be quoted, but the above is sufficient to illustrate the Japanese idea of "difference."

In Japan, also, as in Europe, there is found many an example of what is termed "Canting Heraldry," consisting of devices which have an allusion to the name of the bearer, thus forming a kind of rebus. One instance is that of a family called Hashimoto, whose badge, the buttresses or "foundation" of a "bridge," gives an exact rendering of the name. The free use of Chinese characters as badges of course gives rise to many opportunities

for such punning allusions, and thus we find the families of Ii, Honda, Kuki, Ōkubo, Inouyé and others, bearing as their cognizances characters the reading of which gives the sound of the first syllable of their name. Again, in the *hakubutsuku'an*, or Exhibition Department, in Yedo, there is exhibited a beautiful specimen of a *sashimono*, as above described, to which no description is attached, but the badge marked thereon,—a “temple gate-way,”—together with a second device displayed below, serve at once to make known the fact that it belonged to some member of the house of *Torii*, a family formerly holding the daimiate of Mibu, in the province of Shimotsūkē.

Flags and banners of various shapes have been in use in Japan from the earliest ages. They are first mentioned, in the history called “*Nihonki*,” as having been borne by the army of the Empress Jingō in her expedition against Corea, in 201 A.D.; and from the year 900 A.D. onwards frequent allusion is made to them in Japanese works. The very earliest kind of standard was the *setsu*, the original insignia of a Commander-in-Chief, which consisted simply of a bundle of hair from a bull's tail, fastened to the end of a staff. In later times the favourite forms of flags were those called *fuki-nagashi*, and *hata*. The latter of these was an oblong-shaped banner, generally several feet in length and breadth, which was suspended from a small cross-bar affixed to the staff; the *fuki-nagashi* was a smaller edition of this, very narrow, and terminating in two long streamers. In one of the shrines at Enoshima there is still shown an old specimen of a *hata*, said to have belonged to a member of the family of Hōjō, a powerful house that was for a long time a hanger-on of the Minamoto clan, and itself held supremacy in Japan during the 13th and 14th centuries. This *hata* is about 5 feet in length by 3 in breadth, and is made of coarse stuff of a blue colour, embroidered with gold. At the top are brodered two *mino-gamé*, or fiery-tailed tortoises, and at the foot a large five-clawed dragon. Towards the centre appears the Hōjō badge, consisting of three equilateral triangles

arranged in the form of a pyramid, a central space of similar shape being left vacant. This is called the *uroko* badge, supposed to represent a fish's scales, the legend being that Benten-sama, the Sea Goddess worshipped at Enoshima, appeared to Hôjô no Tokimasa (b. 1137—d. 1216) and bestowed this upon him as the cognizance of his family. The narrow *fuki-nagashi* were ordinarily used to mark out the bounds of military encampments, and it was in Japanese warfare a common stratagem to change or alter them so as to deceive the enemy and lure them into an ambuscade. During the civil wars in the period Ô-nin (1467—1469 A.D.) two brothers of the Hatakéyama family were ranged on opposite sides, and it is narrated in the "Yamato Ji-shi," a small encyclopædia published in Tenwa (1681—84) that confusion was caused by the fact of their both displaying the same kind of white flag, and that one of the brothers therefore invented and used a different style of flag, called *nobori*. This *nobori* was but an enlarged *sashimono*, as already described, and is now always to be seen on the occasion of a Japanese festival. In recent times, the Japanese have adopted the European style of flag for use on shipboard and also in the field.

The national flag of Japan, so well known to every foreigner resident in this country, displays the device of a red ball on a white ground. This red ball is termed in Japanese *hi-no-maru*, or "circle of the sun," in allusion to the fact of Japan being the most distant Eastern country. The adoption of this as the national flag was only notified by the Government in 1859, but the *hi-no-maru* had been for centuries before that time a very favourite badge. At the *Hakubutsu-ku'an* there is to be seen an old standard, described as the "sun and moon standard." This curious specimen consists of a staff, on the end of which is fixed a large white crescent, with the horns upwards, surmounted again by a small red ball: from below the crescent hangs down what appears to be a bunch of white horse-hair. In the 19th volume of a work entitled the "Yedo Meisho Dzuyé," or "Pictorial

Guide to the Celebrated Localities of Yedo," there is given an illustration of a *sashimono* bearing a precisely similar device. This *sashimono*, it is stated, belonged to one Chiba no Tanémichi who was in charge of the hamlets in the department of Kokubu, Shimōsa, in the period Jiuyei (1182-85). It is possible that the old standard above mentioned may date from about the same period. Prior to this time, the Emperor Takakura (acc. 1169, abd. 1180) presented at the shrine of Itsuku-shima, in the province of Aki, thirty fans, which, as the "Gempei Seisui-ki" narrates, "were all pink fans, bearing the *hi-no-maru*." When Takakura's successor, the Emperor Antoku, was carried away to the West by the Taira family, when they fled from Kiyōto before the Genji forces in 1182, he visited the shrine, when one of these fans was given to him by the priest in charge, "who asserted that the sun thereon was the spirit of the "late Emperor,—and that the arrows of the foe would be "caused by it to recoil upon their own persons." Confident in the efficacy of their sacred talisman, the Taira troops, at the battle of Yashima, in Sanuki, in 1185, placed this fan upon a pole in a boat, which was rowed to within fifty yards of the beach, in full view of the Genji, who were mockingly challenged to shoot at it. Nasu Munétaka, a Minamoto warrior, accepted the challenge, shot, and struck the fan, upon which the hostile army were greatly dismayed. In memory of this feat, Munétaka's descendants, the Sataké family, till lately lords of the castle-town of Akita, in Déwa, adopted for their badge a fan marked with a ball. They, however, "differenced" this device by changing the colours of their chief badge to a black ball on a white fan, their third badge shewing a white ball on a black fan. We next meet with the *hi-no-maru* at the time of the invasion of Kiushiu by the Mongols in 1281. Whilst the Kamakura Shōgun, Koréyasu, was collecting forces to march against the enemy, he sent on, as leader of the vanguard, Utsunomiya Sadatsuna, to whom he gave two sacred banners, on which were portrayed respectively the sun and the moon. Both these devices were inscribed

with the names of Buddhist deities. Upon Sadatsuna's arriving on the sea-coast at the scene of action, he unfurled these banners, when a sudden whirlwind arose and destroyed the Mongol fleet. The two flags were bestowed upon Sadatsuna as a reward, and were by him presented to the temple of Minobusan in Shinshiu. Subsequently the one marked with the sun (*hi-no-maru*) was transported to Saikiyôji, a temple near the village of Kamédo, close to Yedo, while the moon banner (*tsuki-no-maru*) was left in its original place. The banner brought to Saikiyôji is described in the "Yedo Meisho" as being $6\frac{1}{2}$ feet (Japanese) in length by $5\frac{1}{2}$ in breadth. Around the edges were marked eight dragons, within which, again, were portrayed the "Four Tennô" (four Buddhist guardian deities), while in the very centre was the *hi-no-maru* inscribed with the names of other Buddhist deities. A banner of this description is styled *hata mandara*. It was suspended, like the ordinary *hata* above-mentioned, from a cross-bar fastened to a staff. Of late years, it may be remarked in passing, this word *hata* has been used in a much wider sense, and is the name at present given to *all* flags or banners, of no matter what shape. The suit of armour worn by Toyotomi Hidéyoshi, better known to foreigners as Taikô sama (b. 1540—d. 1598), now on view at the *Hakubutsu-ku'an*, also bears the *hi-no-maru* in three places, namely, on the breast-plate, and on the two shoulder-flaps. In this connection, it is interesting to note that on the Taikô's breast-plate and gauntlets there are marked no less than eleven different badges, amongst others the Imperial *kiri* and *kiku*. From the above may be learned the antiquity of the present national device of Japan.

Nearly every public department in Japan now possesses its own special flag. That of the Board of Works bears the Chinese character *kô*, 工 ("works"), in red on a white ground, and that of the Survey Department is divided diagonally from right to left, red and white, with the same character, in black, at the base. The War Department uses a white flag with the *hi-no-maru* adorned

with 16 red rays, and the Marine Department a deeply indented horizontal red line, surmounted by an anchor of the same colour, the whole on a white ground. It will be observed that in every instance the Imperial colours of Japan, red and white, are strictly preserved.

So much importance has always been attached to flags by the Japanese, that we find the Christians who revolted at Shimabara in 1639, adopted and used as their war ensign a white flag marked with a red cross, as narrated in the "Shimabara-ki," a history of the revolt in question. So hateful in the eyes of the Japanese was this Christian symbol that in 1673, at Nagasaki, the crew of an English vessel named the "Return" were advised not to hoist the English flag with the cross of St. George. Fraissinet, who mentions this circumstance in his work "Le Japon," further quotes a passage from the journal of the voyage of the "Return," in which it is stated that a special flag had been made, *without the cross*, in order not to give offence to the prejudices of the Japanese, who took the cross to be a distinguishing mark of the Portuguese who had been expelled the country some 30 years previously. On one occasion, we are told, there was hoisted by mistake the flag containing the cross, and this was at once detected by the Japanese authorities, who sent off to enquire the reason. This little incident shows clearly what attention was paid in early days at Nagasaki to even so small a matter as a change in a Heraldic device. The cross does not hold here the honourable position that Western Heralds give to it; it is exceedingly rare as a Japanese badge, and amongst the many suits of armour at the *Hakubutsu-ku'an* there is but one bearing this device,—as a Crest, on a small circular piece of metal.

Before leaving the heading of flags, it will not do to leave unmentioned that of the Mitsu Bishi Company, the Japanese Mail Steamship Company running between China and Japan. This well-known flag displays the device of three red diamonds, conjoined in the centre, on a white ground, thus bearing a "canting" allusion to the name of the Company. The diamond-shaped figures are

said to represent the seed-vessels of the water-plant called *hishi* (the Water Caltrops) which is found in large quantities in the province of Tosa, to which province belonged the merchants who started the Company. It is not improbable that there is likewise contained an allusion to the badge of the former *daimiō* of Tosa, the three oak-leaves being "differenced" and changed into diamonds.

Of Monumental Heraldry there do not exist very striking examples. Indeed, with the exception of the devices shown upon the mansions of the former *daimiōs*, hardly any exist save those on tombstones. The badge is generally sculptured in relief at the head of the stone, the inscription coming immediately below it. In some instances it is gilded. In temples, many of the *torii* or gateways are ornamented with Heraldic devices carved upon them, and in other places small plates of metal marked in similar manner are affixed to the posts or beams of the buildings. The tombs of the Tokugawa Shōguns at the temples at Nikkō, in the province of Shimotsuké, and at Zōjōji, in Yedo, furnish many beautifully executed specimens of these devices.

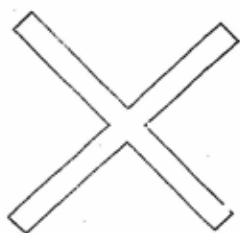
In imitation of Foreign Orders of Knighthood, etc., the Japanese Government, in February 1875, instituted an "Order of Merit." This consists of eight classes, to each of which is assigned its own peculiar decoration. The decoration, in the case of the First Class, consists of an eight-pointed star of thirty-two white enamelled rays, issuing from a red enamelled ball (the *hi-no-maru*); this is worn on the right breast, while a badge consisting of a smaller star of similar description, surmounted by a "five and seven *kiri*" in green and purple enamel, hangs from a white ribbon with red edges worn across the right shoulder. By the Second Class the star alone is worn, on the right breast, while for the Third Class a narrow white and red ribbon round the neck supports a smaller facsimile of the badge of the First Class. Below the Third Class the small badge only is worn, on the left breast, from a small ribbon of the colours, and some difference is made in the enamel and also in the number of flowers on the

kiri. The seventh and eighth classes wear the *kiri* only, without the irradiated *hi-no-maru* below it. The design is a good one, and the decoration compares very favourably with many of those seen in Europe. It would, perhaps, have had a better effect had the red ball in the centre been smaller, and surrounded by a circle of white enamel. This would not only have relieved the dark colour of the *hi-no-maru*, but would also have been in accordance with the strictest Heraldic usage, as showing likewise the *ground colour* of the national flag. A good precedent for this may be observed in the case of the star of the English order of the Garter, where the red cross of St. George has a narrow white edging, the better to represent the device of the English "White Ensign." The Japanese War Medal, which was likewise instituted in February 1875, is of silver, and hangs from a white ribbon edged with green, worn on the left breast. The obverse bears the Chinese characters for "War Medal," while the date is engraved on the reverse.

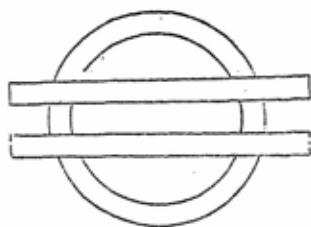
For the sake of pure Heraldic art in this country, it is to be regretted that several of the Japanese officials who have visited Europe have carried their imitation of foreign usages so far as to invent and make use of Supporters for their Badges. This arises from ignorance of the fact that in Heraldry it is only a *shield*, not a *badge* or *crest*, that can have supporters, and it should likewise not be forgotten that in the West it is only to persons of a certain rank that Heralds accord the right to bear supporters to their shields. But, in the absence of any definite rules of Heraldic art in Japan, these anomalies are likely to continue.

It does not, however, seem very probable that any perfect system of Heraldry will arise in this country. With the fall of the feudal régime passed away the most favourable opportunity for its establishment, as in the case also of the countries of the West. In Europe, Heraldry is at this date little more than an interesting study of the past, as a companion to Historical research; and in Japan there does not appear any reason to hope for a revival of

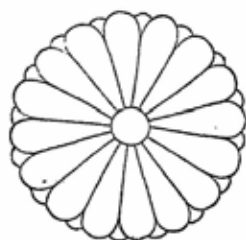
JAPANESE HERALDRY.—ILLUSTRATIONS.



NIWA.



NARITA.



IMPERIAL KIKU.



IMPERIAL KIRI.

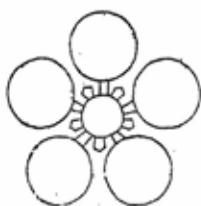


TOKUGAWA.

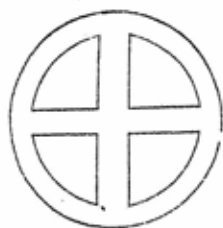


HONDA.

JAPANESE HERALDRY.—ILLUSTRATIONS.



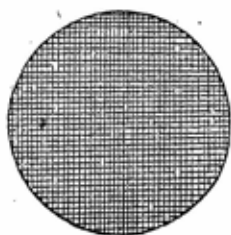
MAEDA.



SHIMADZU.



(1ST.)—YAMANOUCI.—(2ND.)



(1ST.)—KURODA.—(2ND.)

JAPANESE HERALDRY.—ILLUSTRATIONS.



HACHISUKA (2ND.)



THE FYLFOT.



(1ST.)—ARIMA.—(2ND.)

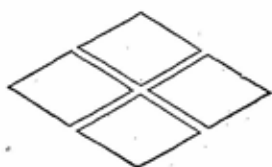


THE TOMOYÉ.

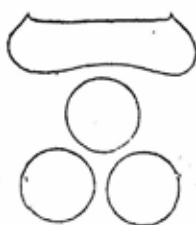


IKÉDA.—(1ST.)

JAPANESE HERALDRY.—ILLUSTRATIONS.



(1ST.)—NAMBU.—(2ND.)

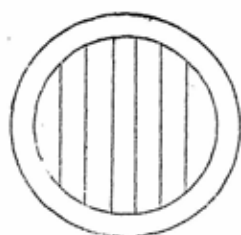


(1ST.)—MORI.—(2ND.)



(1ST.)—DATE.—(2ND.)

JAPANESE HERALDRY.—ILLUSTRATIONS.



DATE' (3RD.)



ASANO.



SATAKE'.

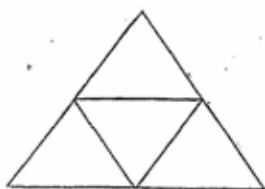


KUSUNOKI.



NAKAYAMA.

JAPANESE HERALDRY.—ILLUSTRATIONS.



HŌJŌ.



CHIBA NO TANÉMICHI.



CROSS CREST,
AT EXHIBITION DE-
PARTMENT.



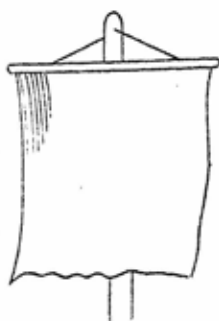
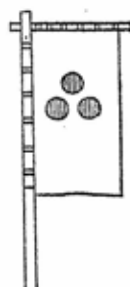
MIDZUNO.



AŌKI.

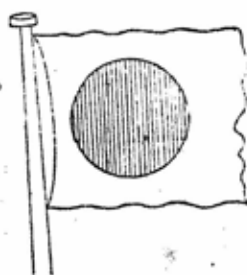
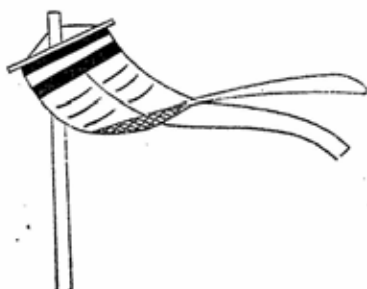
JAPANESE HERALDRY.—ILLUSTRATIONS.

FLAGS.



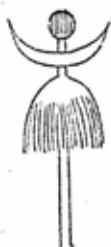
SPECIMENS OF
SASHIMONO.

HATA.



FUKI-NAGASHI.

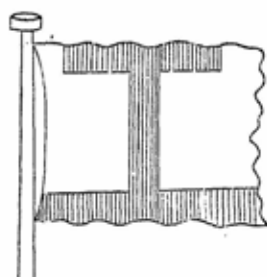
NATIONAL FLAG.



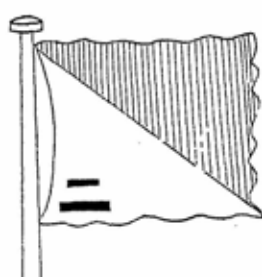
OLD STANDARDS AT EXHIBITION
DEPARTMENT.

JAPANESE HERALDRY.—ILLUSTRATIONS.

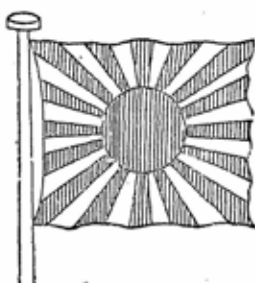
FL A G S .



BOARD OF WORKS.



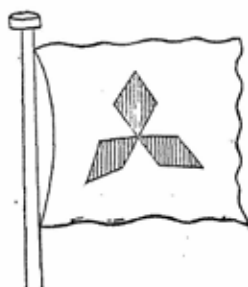
SURVEY DEPT.



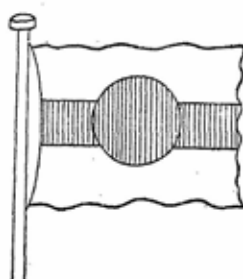
WAR DEPT.



NAVAL DEPT.



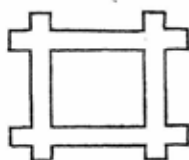
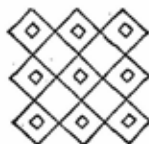
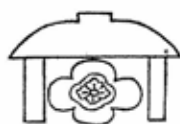
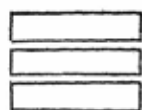
MITSU BISHI Co.



POST OFFICE.

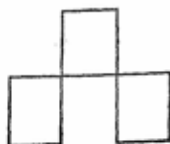
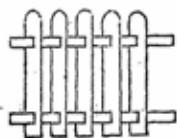
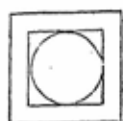
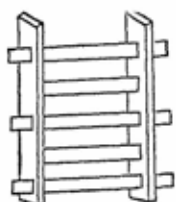
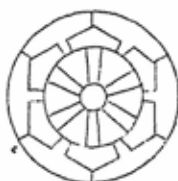
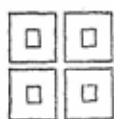
JAPANESE HERALDRY.—ILLUSTRATIONS.

MISCELLANEOUS.



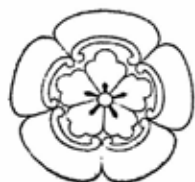
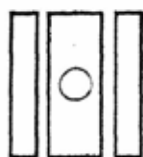
JAPANESE HERALDRY.—ILLUSTRATIONS.

MISCELLANEOUS.



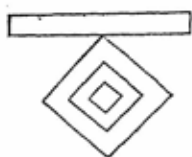
JAPANESE HERALDRY.—ILLUSTRATIONS.

MISCELLANEOUS.



JAPANESE HERALDRY.—ILLUSTRATIONS.

MISCELLANEOUS.



an art which has long since seen its most palmy days in other lands. The above notes may, however, prove of some interest to any one who has studied Western Heraldry, and at least give rise to a comparison between the old system of our own middle ages, and that followed during the late feudal times of the Empire of Japan.

ASIATIC SOCIETY OF JAPAN.

A general meeting of the above society was held in the Imperial University (*Kai Sei Gakko*) on Wednesday, the 25th instant, Sir Harry Parkes, President, in the chair.

The minutes of the last annual meeting, as given in the new volume of the Transactions, were then read; also those of the Council meeting in which it was notified that Professor D. H. Marshall was appointed Recording Secretary for Tōkiō in place of Professor Summers, whose resignation was necessitated by his removal to Niigata.

These minutes having been approved of by the society, the names of three new members were announced, Professor Dixon, J. H. Longford, Esq., and Professor Milne.

Sir Harry Parkes then called upon Mr. McClatchie to read the paper for the evening—"Japanese Heraldry," which thereafter called for some very complimentary remarks from the President on the erudition in Japanese literature as well as knowledge of the science of Heraldry displayed in the paper. He thought that the crusades, tournaments, and wearing of shields and armour would account for the great advance Heraldry had made in the West in the middle ages. He did not know whether so much value was attached to pedigrees in the East as in the West, but if so we must look to China for very long pedigrees. Mr. McClatchie had said that Feudality was productive of Heraldry. China, like Japan, had her feudal system, but he did not remember seeing any Heraldry there. The figure called the *tomoye* was, he thought, probably derived from the Chinese figure, painted in black and white, standing for the origin of all things.

Dr. Geerts asked whether Mr. McClatchie was quite sure that the three leaves in the Tokugawa crest were hollyhock, and that they were not three leaves of *Saishin* or *Hazarum Sieboldii*. Mr. McClatchie said that the Japanese name of these leaves in the badge was certainly the hollyhock.

Professor Ayrton thought that different members of the same family, having different badges, might be parallel to the custom of some English families whose members adopted different mottoes although

the same crest. He observed that it apparently was the modern fashion to wear three *mons* instead of five on the *haori*, one on the back and one on each sleeve. Mr. Ayrton also thought that the study of badges lead to the study of shop signs. The well-known sign of the bush outside a *saké* shop is the same as that used in England, which gave rise to the proverb "Good wine needs no bush."

Dr. Faulds, remarking on the doubt whether the Mikando's crest represented the sun or the chrysanthemum, suggested that it might represent the sunflower, which certainly is seen growing in Japan now, but whether or not it did formerly he did not know.

In answer to one remark of Sir H. Parkes', Mr. McClatchie observed regarding Heraldry in China, that he had noticed that at the change of guards at the gates of cities, each commander had his own special standard.

The meeting was then brought to a close.

USEFUL MINERALS AND METALLURGY OF THE JAPANESE.

F.—ARSENIC.

BY

DR. GEERTS.

*Meeting of the Asiatic Society of Japan, on the
8th November, 1876.*

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LITERATURE.—STAN. JULIEN et CHAMPION, Industries, &c., Paris, 1869, p. 47, Chinese Technology: 天工開物 *Ten-ko-kai-butsu*, Vol. VI., Tab. 6. Natural History 本草綱目 *Hon-zo-ko-moku*, Lib. IX., Fig. 25 and 26; Lib. X., Fig. 52 and 53. ONO RANZAN. 本草綱目啓蒙 *Hon-zo-ko-mo-ku-kei-mo*, Ed. 1847, by ONO TSUNENORI and TE-KEN-SHI-YEKI, Vol. 5 and 6. Japanese Encyclopedia, 倭漢三才圖會 *Wa-kan-san-sai-dzu-yi*, Vol. 61.

Arseniferous minerals are very abundant in Japan, especially the *Arsenides* and *Arsenio-sulphides*. The yellow and red sulphides of arsenic, known as orpiment and realgar, and the native white arsenic, or arsenic-blossom occur in considerable quantities in China, but are not yet found in Japan to a considerable extent. The Chinese have known these three latter ores from the remotest times, and were acquainted with their poisonous properties long before we had in Europe any knowledge about these minerals. Aristotle (4th century B.C.) has mentioned for the first time both the sulphides of arsenic under the names of *sandaraché*, and *arsenicon*, the first being realgar

and the latter yellow orpiment, but the Arabian chemist *Geber** (5th century) first describes the poisonous quality of arsenic. Chinese works of the 8th century before our era speak already of arsenic as a highly poisonous substance. It seems, also, that the Hindoos have known the use of these arsenic minerals in leprosy from the earliest times.

Realgar, orpiment and native white arsenic are distinctly known to the Chinese and Japanese, but as to the numerous *arsenides* and *arsenio-sulphides*, there exists great confusion and want of any distinct knowledge. All ores, in which arsenic is combined with various metals or with metallic sulphides, are designated by the generic name of 礬石 or 礬石 *Yō-seki* or *Nedzumi-koroshi* (rat-poison), because they yield arsenious acid by a process of roasting and sublimation. The crude arsenious acid obtained by this process bears also the name of *Yō-seki*. The name 砒石 *Hiseki* is commonly given to all substances which contain arsenic, but these Chinese characters are used more specially to denote the arsenic-bloom or native white arsenic. The character 礬 *Yō* of the word *Yō-seki* means *rat-poison*, whilst the figure 砒 *hi* or 砒 *hi* is derived from 砒 *Hi* or *Takeki-kémono* (fierce animal) and means properly "bad stuff" (*ashimono*). The confusion of names has caused the Japanese to believe that the rough arsenious acid, prepared by the roasting of arsenides (*Yō-seki*), is a different substance from the natural arsenious acid (*Hi-seki*). Old Chinese works speak of several kinds of natural *yō-seki* or arsenic-minerals, but in a very unsatisfactory manner. I have not yet succeeded in collecting one of these ores by the names given to them in Chinese and Japanese works, because of the profound ignorance which I found to exist among the native naturalists. The only "*Yō-seki*" procurable, and well known to every one, is the crude arsenious acid, prepared by the roasting of several arseniferous minerals. I will mention the names of the

* *Gēbri Summa perfect*, Pars I, Lib. II, Cap. II.

several kinds of *Yō-seki* of the Sinico-Japanese works, but must leave them undetermined, on account of the impossibility of seeing and examining these substances. There are then :

| | | | | |
|------|-----------------------------------|------------------------|---|---|
| 白礬石 | ... <i>Haku-yō-seki</i> | White arsenic-mineral. | | |
| 蒼礬石 | ... <i>Sō-yō-seki</i> | Green | „ | „ |
| 紫礬石 | ... <i>Shi-yō-seki</i> | Violet | „ | „ |
| 紅皮礬石 | ... <i>Kōhi-yō-seki</i> | Safflower-bark | „ | „ |
| 桃花礬石 | ... <i>Tō-kuwa-yō-seki</i> | Peach-flower | „ | „ |
| 金星礬石 | ... <i>Kin-sei-yō-seki</i> | Golden star | „ | „ |
| 銀星礬石 | ... <i>Gin-sei-yō-seki</i> | Silver star | „ | „ |
| 特生礬石 | ... <i>Toku-sei-yō-seki</i> | Isolated | „ | „ |
| 握雪礬石 | ... <i>Aku-setsu-yō-seki</i> ... | Snow-ball | „ | „ |

The last named mineral is said not to be poisonous, and probably is not an arseniferous mineral; the others should possess nearly the same properties with exception of the colour. The two first named kinds are especially recommended for medical use.

The arsenic-mineral *yō-seki* is held to be one of the principal minerals impregnated with the male principle of nature (陽石 *Yō-seki*). It is therefore considered to contain a large amount of internal heat, and forms, according to Chinese medical philosophy, one of the most powerful medicines to subdue all diseases which are caused by the female or cold principle in nature. Water containing *Yō-seki* dissolved is said never to freeze, even at the lowest temperature, and several lakes in China are believed to contain *Yō-seki* on account of their water never being frozen. Snow and ice cannot remain for any length of time on the mountains in the interior of which this mineral is found. Some native works say that the crane (文鶴 *Bun-kuwan*) swaddles her young with a piece of this mineral, but other more prudent authors deny this story.

Rats die quickly, but silkworms are said to grow big and fat, if they eat this poisonous substance. The last named kind of *Yō-seki*, namely *Aku-setsu-yō-seki* (snow-ball-arseniferous mineral) is a white rough mineral from which a liquid exudes during the winter. This stone is

considered the marrow or brain of the minerals (石腦 *Seki-nō*) because it is believed to possess the quality of lengthening life and of transforming mercury into a solid substance, if heated with this metal.

Native writers speak of natural white arsenic, *Hi-seki*, 砒石, in the following words:—"This mineral is found of better quality and more abundantly in China than Japan, and should be most abundant in the neighbourhood of copper mines. But it is also found dissolved in certain mineral-waters, the poisonous water of a spring in 信州 *Shin-shu* (China) being the most renowned. This water should have a greenish colour and at the bottom of the spring solid *Hi-seki*, white arsenic, is found. When this natural white arsenic has been purified by sublimation in a closed vessel, it is called 砒霜 *Hi-sō*, "*Rime of Arsenic*." The naturalist Ono Ranzan is of opinion that the poisonous qualities of the water of the river of Tamagawa, near the mountain Koya-San, in the province of Kii; of the water of the spring *Tori-no-jigoku* (bird's hell) at Arima in the province of Setsu; of the mineral water on the volcanic Unzenga-daké at Shimabara in the province of Hizen, and of the stone named *Setsu-sho-seki* at Nasu, in the province of Kotsuké, are all due to a certain amount of arsenious acid.

Having mentioned what native books say about arsenic, I will now describe the different Japanese arseniferous minerals, which have come under my knowledge.

I. ARSENICAL PYRITES.—I adopt for this mineral the Sinico-Japanese name 鋼色礬石 *Ko-shoku-yō-seki* or *Hagané-iro-yō-seki*, "Arsenic-mineral with a steel-grey colour." As synonym I have adopted the name 砒化鐵 *Hi-kuwa-tetsu*, which means "Arsenide of iron."

This mineral forms amorphous masses, of a steel grey metallic colour and pretty hard. It is found in Japan in very large quantities in the same veins with copper pyrites. The latter ore is often mixed with and adheres to arsenical pyrites. In the pure state this mineral con-

tains about 66 per cent. of arsenic, 30 per cent. iron and 2 to 4 per cent. sulphur, but it is often mixed with the following ore, so that the chemical constitution is extremely variable.

2. MISPICKEL or *Arsenio-sulphide of Iron* (sulphurous arsenical pyrites). This mineral resembles very much the former in its physical qualities, and differs only by a larger amount of sulphur (about 20 per cent.) which it contains. I adopt the same name: 鋼色礬石 *Ko-shoku-yō-seki* and the synonym 砒化鐵及硫化鐵 *Hi-kuwa-tetsu-to-riu-kuwa-tetsu*, which name expresses the chemical constitution (arsenide of iron with sulphide of iron). This mineral is also found in the same veins with copper-pyrites or sulphurous tin ore (Tinkies). Both these arseniferous ores are used in Japan for the roasting and sublimation of crude arsenious acid, which process I will describe afterwards. (For localities where it is found, see *Copper-pyrites*, Vol. III., part I., p. 40.)

3. PHARMACO-SIDERITE or *Cubical arseniate of iron* (*Würfelers* or *Dice-ore*), for which ore we propose the name 六面礬石 *ROKU-MEN-YŌ-SEKI* (Hexahedrical arsenic) and the synonym 六面砒酸酸化鐵 *Reku-men-hi-san-san-kuwa-tetsu* (cubical arseniate of iron). This curious mineral is not uncommon in China as well in Japan. It forms perfectly cubical hard crystals of a dark brown colour and of various sizes. I saw some fine specimens from Kiura, in the district Onagori, in the province of Bungo. The mineral is sometimes found in Japanese druggist shops under the wrong name 自然銅 *Finen-do* (native copper). Besides, the cubical iron-pyrites, which differs from *pharmaco-siderite* in its metallic brilliancy and yellowish colour, bears also the inexact name of *ji-nen-do*.

4. OLIVENITE or *Arseniate of Copper*.—This ore is found in Japan at Ashiwo in the province of Shimotsuké and at Naganobori in the province of Chōshiu (Nagato), in the form of compact or fibrous masses of a dark greenish colour and iridescent surface. I have given it the

name 蒼礬石 Sō-yō-SEKI (greenish arsenic mineral) and the synonym 砒酸酸化銅 *Hi-san-kuwa-do* to express the chemical constitution. It is not improbable that the *Sō-yō-seki* of old Chinese and Japanese books is identical with this ore.

5. GREY-COPPER-ORE (antimonial and arsenical) [*Pana-base. Fahlertz*].—The mineral known by this name has a very complicated and variable composition, not less than six, and sometimes seven elements being found in it. It may be regarded as a combination of sulphide of copper with the sulphides of antimony, arsenic, iron, zinc and often silver. It has a blackish-grey colour with a metallic lustre, and forms in Japan one of the principal ores used in the extraction of silver and copper, although the former precious metal is rarely present in any large quantity. Grey copper ore gives off in the roasting process a considerable amount of impure arsenious acid, and forms one of the causes of the unhealthy life to which Japanese copper-founders generally are unhappily condemned. This mineral is in Japan mostly found together with copper-pyrites. (For localities where it is found see Metallurgy of Copper Vol. III, part I, p. 28.)

6. TENNANTITE or *Arsenical grey-copper ore*.—This forms crystalline masses of a lead-grey colour, and resembles much the former mineral of which it is only a variety. It has also a very variable composition, but may be regarded as a combination of sulphide of copper with mispickel. In Japan it is found accompanied by copper-pyrites, one of the most common ores of this country.

7. CUPRO-SULPHIDE OF TIN (*arseniferous*). (*Tinkies*). 硫化錫鑛 RIU-KUWA-SHAKU-KŌ.—*Tinkies* seems to occur abundantly in the provinces of the south-west of China, but in Japan I know only of its being found in the provinces of Satsuma and Bungo where it is worked upon tin. It contains generally a considerable amount of arsenic, of lead, antimony and copper, so that the tin obtained from this mineral is always very impure and often arseniferous. The Japanese know very well that their

native tin is not a pure metal, and is much less valuable than Malacca or Banca tin.

The above mentioned ores form the different arsenides and metallic arsenio-sulphides which I have met with in this country. There are still many other arseniferous minerals, which I have not yet seen here, but many of them doubtless exist in Japan, as for instance:

| | |
|--|---------------|
| Native arsenic (metallic) "Scherbenkobalt"..... | 砒金 |
| Kupfernickel or arsenide of nickel..... | 砒化鹽結兒 |
| Arsenical nickel or bi-arsenide of nickel...第二砒化鹽結兒 | |
| Nickel-glance or sulfo-arsenide of nickel..... | 砒化砒及砒化鹽結兒 |
| Nickel arseniate..... | 砒酸砒化鹽結兒 |
| Arsenical cobalt or Tin-white cobalt (Smaltin or Speis cobalt) } | 砒化格枚爾多 |
| Cobalt-glance or sulpho-arsenide of cobalt (grey cobalt)..... | 砒化格枚爾多及砒化格枚爾多 |
| Cobalt-arseniate..... | 砒酸砒化格枚爾多 |
| Red silver ore or sulpho-arsenide of silver..... | 砒化砒及砒化銀 |

All these minerals occur generally in metalliferous veins or deposits of the primitive and metamorphic rocks, which are so well represented in Japan.

8. NATIVE WHITE ARSENIC (*Arsenic-blossom*), 砒石 HI-SEKI or 信石 SHIN-SEKI. Synonyms; 信砒 Shin-hi. —黃龍華 Kō-riu-kuwa.—赤帝華精 Seki-tei-kuwasei.

This mineral, the "*Saféd Sumbul*" of the Hindoos, is well known in India and China, and seems to be found in relatively small quantities as a secondary product near solfatares and certain volcanic mineral springs. As known in commerce, it forms crystalline, semi-transparent crusts or concretions, partly consisting of aggregates of small prismatical crystals, and partly mixed with a reddish, yellowish and greyish substance of a more compact character. This latter coloured admixture contains probably some metallic arsenic and sulphides of arsenic. The reddish or yellowish part bears the name

砒黃 *Hi-wo*, i.e. "yellow arsenic," and those pieces which have the colour of raw beef are much esteemed by the native druggists as a medicine against itch, leprosy and other skin-diseases.

I am not quite sure whether this mineral is found in Japan, although it can be seen in every Japanese drug-shop. I have, however, reason to believe that all this white arsenic comes from China, where it is found especially in the province of Kiang-shin (*Shin-shu*), but I have some pieces in my collection which are said to have been found at the volcano Unzengadaké, at Shimabara in the province of Hizen.

9.—ORPIMENT (crystallised) or YELLOW SULPHIDE OF ARSENIC 雌黃 *SHIWŌ* i.e. (*female yellow*), *Synonyms*: 金液 *Kin-yeki*.—帝女血 *Tei-jo-ketsu* (i.e. Blood of the Empress). The fine crystallised kind or soft scaly aggregates of a bright yellow colour I have never seen in Japan, although sometimes fine Chinese orpiment can be found in the collections of Japanese naturalists. The name *Shi-wo* is more particularly applied to the crystalline bright yellow specimens. Orpiment in compact or granular masses of a dull orange colour, the *Hartal* of the Hindus, can be found with every Japanese fire-work maker, and bears the name 石黃 *SEKI-wo* (i.e. *stone-yellow*). Whilst the first crystallised kind from China is very high in price, the latter can be bought cheaply. It is used chiefly in pyrotechnical mixtures, for the fabrication of a yellow kind of ink or drawing stuff, and in medicine against different diseases of the skin. I know only the following places in Japan where orpiment is found in respectable quantities, Sadayama-dani near Sapporo, on the island of Yezo, at Furubé in the district Sugayabé-gōri in Yezo and at Sasagaya in the district Shikasé-gōri of the province of Iwami.

NO. 10. REALGAR or RED SULPHIDE OF ARSENIC. 雄黃 *Ū-wō* or *Ō-wō* (i.e. *male yellow*). This mineral, the "*Mainsil*" of the Hindus, is not rare in China, but in Japan an inferior kind only has been found up to this

time. The Japanese import the better kinds from China, and distinguish, according to quality, three varieties :—

1. 鷄冠石 KEI-KUWAN-SEKI (cockscorn-stone), or the true *o-wo* with a fine bright red colour. It forms irregular masses, is soft to the touch, and should not give any smell, even when rubbed with the fingers. This kind is highly appreciated by the Chinese and Japanese in jewellery and medicine.

2. 熏黃 KUN-wo (odorous realgar). This variety has no bright red colour, is hard and not as pure as the former. It gives an odour, when rubbed with the finger.

3. 臭黃 SHU-wo (fetid realgar) is the most inferior kind and possesses a peculiar kind of garlic odour. The Chinese wash this fetid realgar with vinegar in order to remove its bad smell, and by this means augment its commercial value.

According to the Japanese chronicle *Zoku-nihon-ki*, some inhabitants of the province of Isé presented the first Japanese realgar to the Emperor Monmu Tenno, in the year 699.

The Chinese and the Japanese of the old schools of art cut ornaments, mostly balls, fruits, peaches and small vases, from this mineral, which takes an excellent polish. Sometimes *netsuke* of cut and polished realgar can be found in curio-shops, and I have often seen a series of fine polished spheroids of realgar, crystal, rose-quartz, agate and jade fixed on silver ornaments (ships, birds, flowers) for the *Tokonoma*.

Although a piece of well polished realgar forms a pretty precious stone, it is useless for any other purpose than for articles for the drawing-room, on account of its softness. The objects made of this mineral cannot support contact with other substances, without losing their polish.

The small Chinese medicine-cups made of realgar, are already too well known to need much mention. In Japan, however, I have never seen these cups, the use of which seems also to be perfectly unknown in this country. The *netsuke* of realgar were considered formerly a kind of pre-

servative (amulet) against fever and malaria (邪氣, *Yaki*), but of late, it seems, they have lost their reputation. A small portion of powdered realgar is sometimes placed upon burning charcoal as a protection against mosquitoes, who die speedily from the poisonous vapours of arsenious acid, given off by this roasting process. Besides it is used for the preparation of a reddish ink and painting colour.

I am not sure whether the Japanese know the method of producing artificial realgar by fusing arsenical pyrites with iron-pyrites, as it is effected in Europe.

The localities in Japan where it is found, known to me, are :

| <i>Provinces.</i> | <i>District.</i> | <i>Place.</i> |
|---------------------------------|-------------------|---------------|
| Isé | Itakagōri..... | Tanjō-mura. |
| Sendai | | Minoha-yama. |
| Rikuzen (Mizawa <i>ken</i>)... | Kuriharagōri..... | Monji-mura. |

After having thus mentioned the different arsenic ores, I will now proceed to the description of the preparation of arsenious acid.

Preparation of arsenious acid, 礬石 *Yō-seki* or *Ne-dzumi-koroshi*.

Sublimed arsenic is prepared in China and Japan by a rude process of roasting and sublimation. Different arseniferous minerals are used as material, but chiefly arsenical pyrites, tennantite and grey copper ore. This work is very dangerous to the workmen on account of the bad construction of the roasting furnace and condensing apparatus. The Chinese method, which is sometimes used in Japan, and is described in the Chinese work on Technology, *Ten-ko-kai-butsu*, is better than the original Japanese manner, which I shall mention afterwards. The inclosed figure is a reproduction of the said Chinese work and gives some idea of the whole apparatus.

A temporary furnace is built with stones and rough clay in an uninhabited place on the mountain. It has the shape of a cone cut off at the top. The narrow upper part of this cone is loosely covered by a subverted semi-globulous iron-vessel, and at the lower and wider part of

the conical furnace is an opening for the entrance of the air and for the introduction of the ore and fuel (wood). The ore being divided into smaller pieces by hammering, is placed upon the wood in the furnace and afterwards firing is commenced. The sulphides (of the ore) are decomposed by the double action of heat and air, the sulphur escaping for the most part as sulphurous acid gas. The arsenic of the ore is thus converted by the air into arsenious acid and the latter is deposited as a fine powder or semi-crystalline crusts on the inner side of the colder iron vessel. When the sublimated crust has obtained a certain thickness, or if the iron pot becomes too hot, the fire is allowed to cool, in order that the sublimate may be removed. The first iron receiver is then replaced by another and firing is again commenced, until the stock of the ore is exhausted. The condensed matter in the iron receivers is still very impure, and contains ordinarily a considerable amount of oxyde of iron. For this reason it has always a yellowish or brownish colour.

In this impure state it is mostly known in commerce under the name of *Yō-seki* or *Nedzumi-koroshi* (rat's-poison).

Sometimes, however, it is subjected to a second sublimation, or is purified by means of cristallisation. It becomes then a white coloured crystalline powder and bears the name of 砒霜石 *HI-SO-SEKI* "*Rime of Arsenic.*"

During this roasting-process the workmen are advised to remain at a distance of at least 100 feet off the furnace in the direction from which the wind blows. The same workmen may not work continually; they ought to change after each two consecutive operations, if their health is not to be speedily destroyed.

According to Ono Ranzan, the preparation of arsenious acid is effected in Japan principally at the mountain Ginsan in the province of Iwami; at Nasuno in the province of Kotsuké, and at Nagano-bori in the province of Choshiu (Nagato). The arseniferous minerals are laid upon the fuel in a small open furnace, rudely built with some stones and clay. The upper part of the furnace

is closed by wet straw-mats and firing commenced. The arsenious acid formed by this roasting process is condensed by the wet mats, and finally the latter becomes dry and burns to ashes. The fire is extinguished and the crude arsenious acid taken away. It is very impure and has a yellowish or brownish colour. This old Japanese manner of preparing arsenious acid is still more unhealthy and rude than the Chinese process already described. The roasting of arseniferous minerals is even in Europe an unwholesome operation, although good furnaces and large condensing chambers are used, but the Sinico-Japanese methods are, in fact, very dangerous to the workmen.

If the ashes of the mats which have served in this operation are thrown into the river, the fishes are said to die speedily.

Until the year 1661 the sale of arsenious acid (*yô-seki*) was perfectly free in Japan, and the Chinese exported it also into this country. But the Emperor Gosai Tenno prohibited the importation on account of the numerous cases of poisoning at that time.

The arsenic mines in the provinces of Kotsuké and Setsu were closed and palisaded, but in latter times this prohibition was again withdrawn. At the present time the sale of arsenious acid and other poisonous substances is subject to registration, according to the new law of the department 衛生局 *Yê-sei-kiyoku* (Board of Health of the Ministry of the Interior, 内務省 *Nai-mu-sho*).

At present, cases of poisoning are creditably rare in Japan and less than in most foreign countries, but there was a time when it was not so. It is said that formerly political and social adversaries used the ceremonial tea-parties, named *cha-no-yu*, to poison their enemies secretly.

Under the guise of friendship the adversary was allured into the small tea-room or summer house which is invariably to be found in the garden of every official of a certain rank, and the tea was there served with all the customary ceremonial. The guests of highest rank drank

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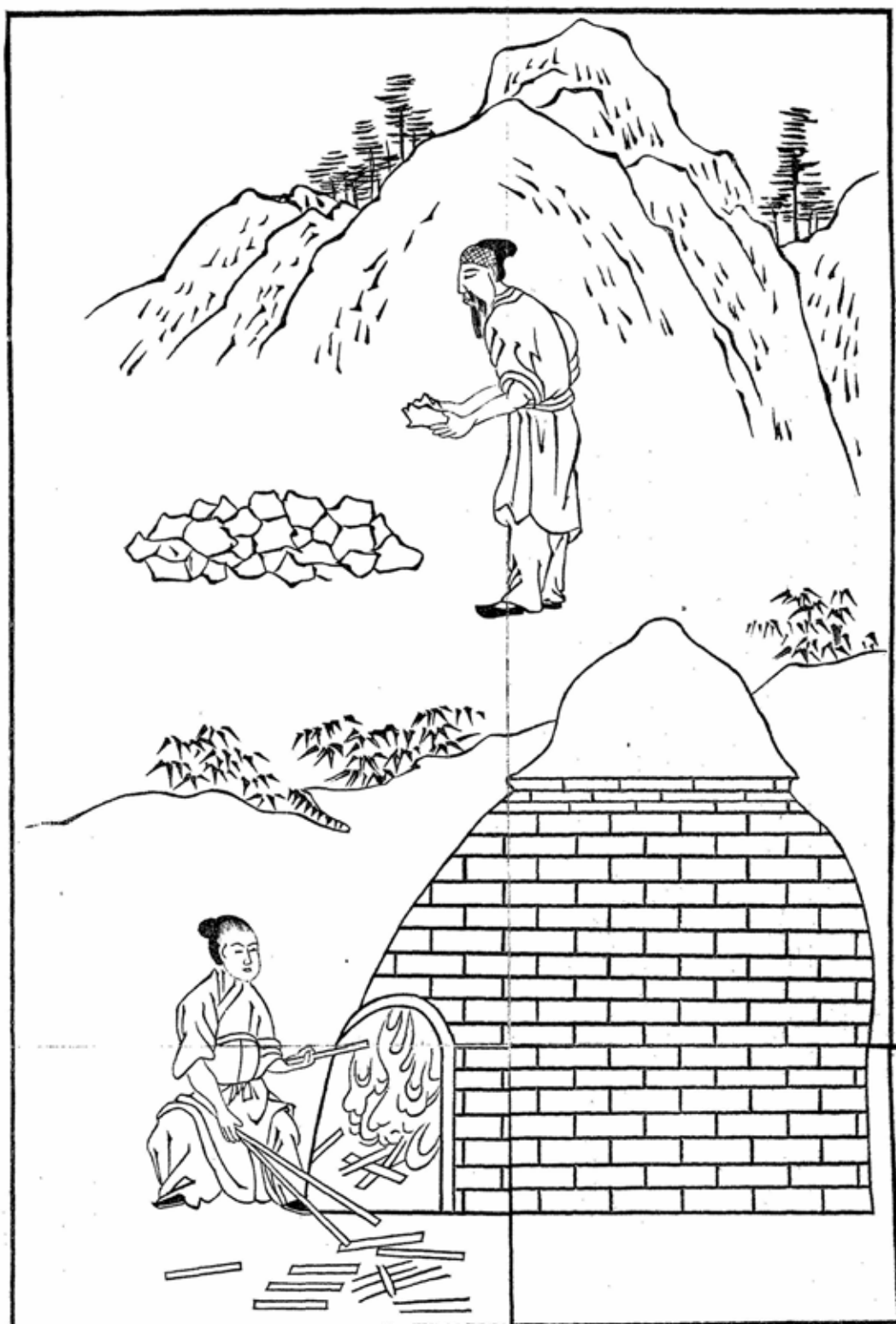
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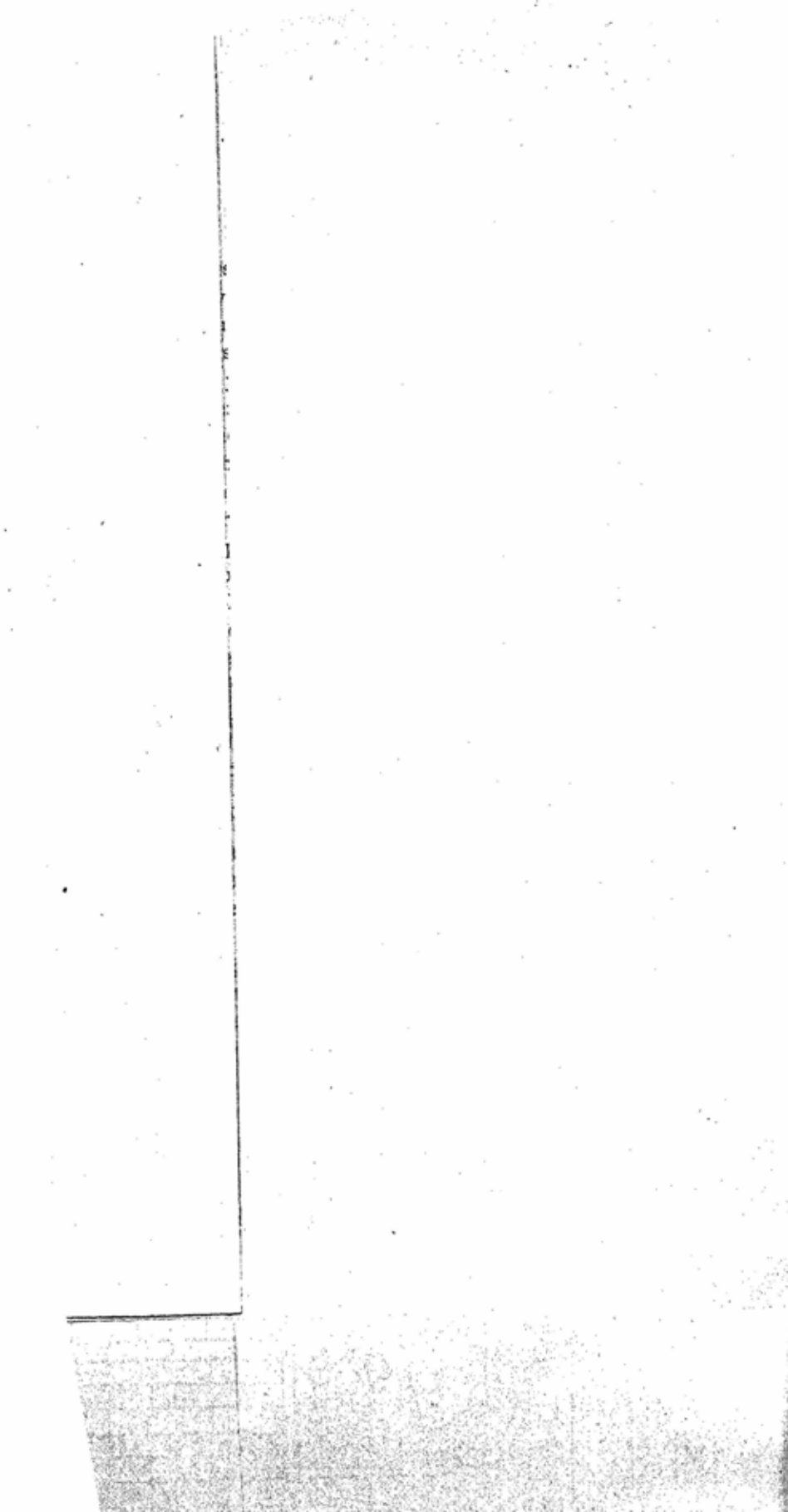
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PREPARATION OF ARSENIOS ACID.

TEN-KO-KAI-BUTSU.

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first, and the host dispensed the tea without the aid of servants, who were never permitted to be present at an official *cha-no-yu*.

Thus the tea-parties became the most famous occasions for all sorts of secret negotiations, political intrigues and even of poisoning. It was at one of these that the celebrated general Kato Kiyomasa, Prince of Higo, and a contemporary of Taiko Hideyoshi, was poisoned secretly in 1611 by the Shogun Iyeyasu at an official *cha-no-yu*.

The chief use of arsenious acid in Japan is as rat-poison; further it is used in medicine and for the melting of an alloy of copper, antimony and arsenic, called 白銅 *Haku-do* or "White Copper."

The antidotes recommended by native works for poisoning by arsenic are numerous, the three following, however, are considered the best:

1.—A cold infusion of a kind of small bean 綠豆 *Rokudzu* or *Bundo-mamé* or *Yayenari*, the *Phaseolus radiatus* L., var. *Subtriloba* Miq. of botanists. The efficacy of this infusion would be augmented when it is mixed with powder of dried human excrement.

2.—Very fine powder of lead or tin, as it is obtained when these metals are rubbed on a hard stone.

3.—Powder of a kind of red ochre mixed with a little water.

There can be no doubt that these antidotes are inferior to the hydrated peroxide of iron recently prepared, as it is adopted by most of the foreign Pharmacopœias for this purpose.

ASIATIC SOCIETY OF JAPAN.

A general meeting of the above Society was held in the Imperial University (*Kai Sei Gakko*), on Wednesday the 22nd November, Sir Harry S. Parkes, President, in the chair.

The recording secretary read the minutes of last meeting, and reported that at last council meeting H. Machida, Esq., *Hakuran Kuwai*, and Dr. Naumann, *Kai Sei Gakko*, were duly elected members of the Society; also Dr. Syle had received communications from Kobe and Nagasaki stating that the time had not yet arrived when branches of the Society could be profitably established at those places.

The library Committee intimated the receipt of several journals, also the presentation from the President of a valuable work on Old Japanese Pottery, and a pamphlet from Mr. Boyle (with map) describing the Main Trunk Lines of Railway between Yedo, Kiôto and Niigata. The corresponding secretary mentioned having received from Mr. Brunton a report issued by the English Government Meteorological Department. This report was compiled by Commander Tizzard of H.M.S. *Challenger* from observations made during the last few years at the Lighthouse of Japan. Although these observations had been somewhat severely criticized in some of the English scientific papers on account of the results shewing probable errors in some of the instruments used, still it was pleasing to find that Japan could furnish sufficient data for the production of a report at all. Another contribution Prof. Ayrton had to bring before the notice of the members was the Introduction to the book which was being written in French by their indefatigable member Dr. Geerts. This book was intended to be an encyclopædia of Japanese and Chinese Natural History. Too much importance could not be attached to this work of Dr. Geerts', since nothing could be of greater value to a man arriving in this country, desirous of studying its Natural History, than to be able at once to learn what is already known on the subject. From a hasty glance at the Introduction Prof. Ayrton had learned that petroleum was discovered in Echigo in 668 A.D., and that there was a Chinese Work on "Plants that can be used as food during a famine." Now if it be remembered what strenuous exertions the Indian Government had to make to ward off last year the disastrous results that might have followed from the Bengal famine; and if it be considered that at this very moment the Madras Government is sorely tried in preventing the failure of the monsoon producing starvation on a large scale; that but the other day the police

had to be employed to quell a famine riot in Madras; it will be seen that any information regarding the substitution of some other food for rice in time of famine is of the greatest importance to a rice-eating people like the Japanese. Another class of books referred to by Dr. Geerts was works on ornamental plants. One of these, *Somoku-kin-goshu*, containing accounts of variegated leaf culture, might prove popular amongst foreign horticulturists. Mention is of course made in this Historical Introduction to Dr. Geerts' large work of Von Siebold's arrival in 1823, and of his collecting during six years, with good Japanese assistance, 2,000 specimens of plants and many animals, and of his success in acclimatizing in his garden in Leyden on his return many new hydrangias and other plants.

Dr. Syle proposed that the opportunity should be taken of recording the sense of the great loss the Asiatic Society of Japan has sustained in the death of Mr. Hatakeyama, late Director of the Imperial University, who was one of its earlier members, and to whom the Society are under many obligations for the facilities of meeting which they now enjoy. This motion was seconded by Mr. Hamao and warmly approved of by the meeting. The President sympathized with the Society in its loss of Mr. Hatakeyama, whom he had known both abroad and in his own country, where he had on several occasions to fill difficult positions. His loss he could not but regard as that of a personal friend.

The chairman then called on Mr. Aston to read his paper "On modern Shintô burial ceremonies."

Some interesting discussion followed. Professor Ayrton asked for information regarding the custom the Japanese had of wrapping white paper round the hilts of their swords at funerals. In answer to this Sir Harry Parkes thought it a very natural custom, as it was merely putting a symbol of mourning on an important part of dress, and was parallel to the English custom of soldiers wearing black cloth on the arm. Mr. Aston observed that on funeral occasions the *chonin* even were allowed to wear swords, thus shewing what an important part of dress the swords was considered to be.

Professor Smith enquired whether Buddhist and Shintô ceremonies were not often mixed, and whether cineration was peculiar to one or the other of these religious systems. Dr. Syle remarked that, however it might be in Japan as to the blending of Shintô with Buddhist rites, in China there was a great mixture at funerals of Buddhist with Taoist ceremonies. It had been said that as long as a Chinaman was in prosperity he was a Confucianist, when he fell sick and was in dread of death he was a Buddhist; and when his house was burnt up or some other outward calamity happened, he was a Taoist. Among the common people in and around Shanghai it was the custom for a Taoist to officiate at the house of the deceased and as the body was carried out over the threshold he dashed in pieces with a heavy knife a bowl of earthenware—his object being to scare away the vampire which is supposed

to be waiting at the door to molest the departed. As to white being the mourning colour, the contrast between Asia and Europe was marked, for, beginning at Greece and going westward, we find black selected as the colour most expressive of the sorrow of sorrows. It was the boast of Pericles that he had never caused one family in Athens to wear black. If we knew the mourning colour among the Persians we might perhaps find a turning-point from which this noteworthy divergence commenced. At some Shintō funerals offerings were made of rice, fish, fruits, wine, and the ceremonies were remarkably impressive from their simplicity and the beautiful symbolism they embodied.

Prof. Marshall remarked that the use of white as a mourning colour was not confined to the Far East, for even in England white was considered a mourning colour, the hearses carrying the bodies of children being covered with cloth of that colour, &c.. Sir Harry Parkes also remarked that at Japanese funerals men generally wore stuff of a grayish slate colour and not pure white.

The President then accorded a vote of thanks to Mr. Aston in which the meeting heartily concurred.

Sir Harry Parkes then read the 2nd paper "On the mission to Rome in 1615 of an Envoy from the Prince of Sendai." This contained an account of a valuable old oil painting and illuminated parchment document, which was presented to His Majesty the Emperor at Sendai on the occasion of his journey to the North. The painting, executed in Italy, is the portrait of the Envoy, while the other is an interesting document which granted to him the freedom of the city of Rome. Through the kindness of His Excellency Iwakura and as a mark of his great appreciation of the work of the Society, the President was enabled to shew these this evening to the members. The light they threw on the history of the empire at the time of the mission was listened to with great interest. Unfortunately on account of the lateness of the hour the reading of some letters, &c., connected with the Mission had to be postponed. A vote of thanks having been accorded to the President, His Excellency Iwakura, Mr. Aston, and Mr. MacClatchie, to all of whom the members were indebted for interesting papers, the meeting adjourned.

“THE CAROLINE ISLANDS.”

*Read before the Asiatic Society of Japan, on the
13th December, 1876,*

BY

RUSSELL ROBERTSON, Esq.

The following notes of the voyage of the British schooner *Rupak* amongst the Caroline Islands have been kindly placed at my disposal by Mr. Skinner of Singapore (part owner of the vessel), who was on board her throughout the cruise. They furnish a narrative which will, I think, be read with interest by many here, treating as they do of lands and people which are not so very remote from these shores. The Caroline Islands consist of several groups spread out in a direction from West to East, and measuring between those extremes somewhere about 2,000 miles, while from North to South they extend also for a distance of about 200 miles.

They may be said to be contained between the 7th and 10th parallel of North Latitude and extend from 134 degrees to 160 degrees East Longitude, and lie, to put it roughly, about 1,600 miles distant from this. In the course of this paper I shall have occasion to refer to some of the Philippine Islands and to the Mariana group, the latter lying between this and the Carolines. Mention will also be made of some of the Islands close to the Solomon group, to the southward of the Carolines.

The British schooner *Rupak*, Mr. B. E. Gall, Master, left Singapore on the 10th January, 1875, bound on a trading

and fishing voyage to the Caroline Islands, and to the islands lying to the north of the equator as far as 154° E.

On the 30th January the schooner was off the Island of Gebe, from which canoes were seen to put off. When alongside, the crews were invited on board. The head-men were found to be Bugis, natives of the Celebes, and their language was Malay, while the rowers or paddlers were Papuans. One of the head men introduced himself as the Captain of Gebe and was anxious that the foreigners should go on shore. The invitation was, however, declined. These people had several sorts of fruits and vegetables and a few fowls in their canoes; they had also some wild nutmegs of which they said plenty were to be had on shore. Rice was apparently very scarce with them, and an offer was made to exchange three piculs of pearl shell for one of rice, and though the offer was a tempting one, it was withstood as it would have been impossible to procure rice at any of the other Islands it was intended to visit. A little tobacco and coffee, gunpowder and percussion caps were given to the head-men; some vegetables were purchased, and in addition some seed pearls of good water but of small size.

On the 15th February the *Rupak* arrived off the Pellew Islands and anchored in the harbour of Malakan. This island is said to have been purchased from the natives by the late Captain Cheyne, and the papers relating to the purchase are, or were lately, at the British Consulate at Manila. The natives also consider the Island of Errakong, near which the British ship *Antelope* was wrecked some ninety years ago, as belonging to the British Government.

Since a prior visit made by the *Rupak* to these islands, it was found that the natives had been turbulent and quarrelsome, and had robbed three of the European traders residing on the group. It would appear that a representation was made to the British Admiral, who availed himself of the good offices of Captain Knorr of the German corvette *Hertha*, which vessel recently visited the Carolines to enquire into the above circumstance. I understand

that, while at the Pellews, Captain Knorr called the chiefs together on board the *Hertha* and gave them a severe admonition in the presence of the Europeans, telling them that any future outrages upon, or robberies of, the white men would be most surely and rigorously punished.

The northern part of the Pellew Islands, from Corror upwards, is moderately high, and could with a more industrious class of inhabitants be made very productive, as the soil is extremely fertile. The southern portion of the group, with the exception of the Pillelew and Ngour, is uninhabited. The islands are, as a rule, small and of basaltic formation, densely covered with hard-wood trees, the cabbage-palm, etc. Pillelew has a little tarro land; but the root is small, and the natives of this island are dependent in a great measure on the northern islands for their food during certain seasons of the year. The bread-fruit, however, is more plentiful here than in the other parts of the group. The cocoa-nut is also abundant, and from its fruit the Pillelew people make oil and molasses which they exchange with the northern people.

The Pellew Islands produce bêche-de-mer, tortoise-shell and pearl-shell, the latter, however, of inferior quality and known in commerce as the "black lipped." The soil from Corror northwards is rich and produces a great many tropical fruits (most of which were introduced by Cap. Cheyne) in abundance and without any cultivation. Tobacco of a superior quality is grown by the natives, and coffee could be raised with very little trouble.

The staple food of the natives is tarro, which is grown in the swampy or marshy land, and the tending of which falls upon the women. Pigs and goats, introduced by H. M. ships many years ago, are plentiful in most parts of the group, and except under extraordinary circumstances can be procured cheaply. The only indigenous animal is the rat. Dogs and cats are found, but as the native names for them are corrupted Spanish words, they were most probably introduced by vessels from Manila which came to trade here formerly. Two kinds of

snakes, neither of which is venomous, are found here. There are also a few alligators, but only in one portion of the large island called Babelthoup. Green pigeons are very plentiful in the season; a few teal are got occasionally, and a small species of the flying-fish is also found, which is considered a great delicacy by the natives.

The Pellew Islands are divided into several petty districts, each of which has its own ruler and staff of chiefs; but whatever may have been the case in former times, they have now very little authority. The succession of chiefs does not appear to be regulated by any fixed rule, and we generally find that those men whom we considered the most wealthy (from a native point of view) attain the highest positions. There are certain families which claim to be noble. Their nobility, however, procures them no privileges beyond the bare title, and they have to do their share of work and pay their proportion of the expenses that fall upon the community of which they are members. Polygamy is practised but to a small extent. Should a man have more than one wife, separate establishments are kept for each.

The Pellew Islanders have but a vague idea of a future state, for they believe that only those men who have been chiefs will be admitted to it. Every tribe has its own God, to whom all questions of moment are referred, the medium of communication in nearly every case being a woman known as the "Kaleeth," or God's wife. These women, by a rude sort of ventriloquism, manage to deceive the people and have a great deal of influence in their councils.

The natives have a currency amongst themselves, of which they are very jealous, and foreigners can rarely procure specimens of it. It consists of beads of various descriptions, and of which no account as to their manufacture nor of the material of which they are composed can be found, and the only way in which the natives account for them is that they came from the heavens. The most probable conjecture is that they were brought by the

the Arabs who are supposed to have traded here in days gone by.

The whole of the Pacific Islands are being gradually depopulated; in the Pellews the principal cause at work is an epidemic which takes the form of a species of influenza. This, or a modification of it, appears from time to time throughout the Caroline group and sometimes attacks the Europeans living on the islands.

In the Pellews and Uap—an island close to the Pellew and known as Pillula kap,—there are institutions known to Europeans as "big houses," which are also potent adjuncts to depopulation. The primary object of these houses is to keep the fighting men together in the event of an attack being made on the village during the night, the time usually chosen by these people for making raids on each other. They are, however, merely brothels, the inmates being, as a rule, those taken prisoners in the wars, those hired from other towns, and women who have left their husbands. There are many customs regulating these houses and their inmates which are unintelligible to Europeans; and on occasions all women, even of the highest class, have to spend some time in them. As a natural consequence there are but few people married. Of the married women it may be safely said that not two women in five bear children. Two or three children are considered a large family.

In common with most of the Pacific Islanders these people have solemn dances, generally at the conclusion of a war or feast; and there are also dances in which women alone perform, but they are rare and usually scenes of debauchery, great licence being allowed on such occasions.

The men all wear the *tappa*, or loin-cloth, common to the whole of the Pacific Islands, red and blue cloth being most esteemed. The women wear a kind of apron made of various leaves and grasses, principally from the Pandanus or screw pine, dried and shredded out. Some of the principal families have the privilege of dyeing the dresses of the women of various colours; this privilege is much esteemed and encroachments on it are punished with a fine.

All the people are tattoed on the hands, arms, and legs, and a rude system of heraldry may be traced in this and in the decoration of the canoes of the chiefs and principal people.

Wars, so called, are frequent, and a settled enmity exists between the natives of the northern and southern portions of the group. Some two or three years ago, the King (so called) of Artingnal (the most important place in the north) married the head-woman of Corror. It was thought that this would have brought about a lasting peace, but this has not proved to be the case hitherto.

In former times the spear was the only offensive weapon, but of late years the natives have been supplied with fire-arms, and generally show considerable skill in their use.

The Pellews are sparsely inhabited by a race of less stature than the other Caroline Islands, with the exception of the Island of Uap or Yap, a small Island lying to the north-east of the Pellews. They are also darker in colour, although occasionally some of light colour are found amongst them, principally among the chief families. The men are lazy and do little else than fish, leaving the cultivation of the tarro to the women; and it is noteworthy that the women attached to the "big houses" are not allowed to work in the tarro grounds.

Great care is taken of the children, of whom, however, there are very few. At the age of 30 or 35 years the people commence to look old, and it is rare to find a man or woman above the age of fifty. There are several half-breeds on the islands, descendants of European sailors and others who have taken up their abode in these islands. There are also descendants of white women and natives on the group, though no account of how the women got here is extant; but as the natives are known to have attacked several ships about fifty or sixty years ago, the women were probably taken from some captured vessel.

The villages are almost without exception built at a short distance from the sea, the houses being neatly con-

structed some two or three feet from the ground, the roofs of which are thatched with grass and the leaves of the pandanus. In front of each house are seen the graves of deceased members of the family. The houses go with the titles, each chief in succession occupying the residence of his predecessor. In the centre of the villages there are paved squares in which consultations take place and dances are performed. There are paved roads through every village of the group, and when repairs are needed these are done by the community, any person absenting himself being fined. In front of every village of importance are large sea-walls or piers built out on to reefs, and some of these are apparently very ancient. That at Corror, the most important of the towns, is very substantially built of stone and coral and is about a quarter of a mile long. The "big houses" before mentioned are also substantially built of hard wood and are well thatched, being from sixty to seventy feet long, and from twelve to fifteen broad. In these buildings the cross beams and supports are rudely carved in relief, which carvings record the history of the people, and purport to chronicle any remarkable occurrence. There are, however, but few of the natives who can explain them.

The language of the Pellews is idiomatic and apparently difficult of acquirement by Europeans. A sufficient knowledge for trading purposes is, however, soon obtained.

From the Pellews the schooner *Rupak* shaped her course to the Matelotas. These will be observed on the map to be a group to the eastward and northward of the Pellews, but still to the southward of the island of Uap previously mentioned. The Matelotas are also known under the name of the Gulus, and are inhabited by a few light-complexioned people resembling the other Caroline Islanders. Some six or seven years ago this group, and the neighbouring one of the Mackenzies, almost due north of the Matelotas, were all but entirely swept away by a severe cyclone which destroyed nearly the whole of the cocoa-nut palms,—the fruit of which, with fish, is the only food of the natives.

The Mackenzie group is also sparsely peopled by a light-coloured race. On one of these islands the Jesuit father Cantova was killed, and the few natives remaining still look for his return, thinking that he will restore the islands to their original state.

The Uap group, lying between the Matelotas and the Mackenzies, consist of three principal islands, which are comparatively high, and are thickly inhabited by a people similar in appearance to those of the Pellews; their manners and customs also in a great measure resemble those of the Pellew natives; but they are, however, a superior class of men and far more industrious. They cultivate large quantities of yams and sweet potatoes, tobacco and some of the tropical fruits. The whole of the coast is thickly planted with cocoa-nut palms and a large quantity of *coppra* is produced annually; *coppra* being, I may mention, the dried fruit of the cocoa-nut. The reefs surrounding the group formerly furnished *bêche-de-mer*, but at present only a very little can be procured. Pigs are plentiful, and there is also a kind of half domesticated fowl which can be procured cheaply. Deer and goats are seen, but the natives do not protect them, as they destroy their plantations. The rat appears to be the only indigenous animal, and the large edible *iguana* is found in the jungle, but is protected by the natives, who regard it as sacred. The money of these people consists of large worked pieces (in the shape of a mill stone) of a semi-transparent spar, which is procured from the Pellew Islands and esteemed very highly; its principal uses are to pay war indemnities and the funeral expenses of the chiefs. Pearl-shell of large size is greatly valued and much sought after, and vessels trading in this group can supply themselves with a considerable quantity of provisions for a few pieces of pearl-shell.

Until of late years these people have borne a very bad character, in consequence of their having boarded and captured several vessels from Manila and murdered their crews. Now, however, they are generally well disposed towards Europeans, of whom there are nearly always three

or four living on the group. The government is similar to that of the Pellews, but the natives acknowledge one supreme chief. This office appears to be hereditary, and the present holder of it is a young man very well disposed towards Europeans, to whom it is customary for all trading vessels to make some trifling present. In Uap, as a rule, the chiefs appear to have considerable authority, and the absolute control of life and death.

The people have a few fire-arms in their possession, but they are not skilful in the use of them, preferring the spear, in the handling of which they are very expert. Their wars are conducted with energy, and a single battle (so called) is generally decisive.

The dress of the Uap natives is somewhat like that of the Pellew Islanders; the women wear petticoats made of leaves and grasses reaching to the ankle, the men wear the *tappa*, with the addition of bunches of bark of the bread-fruit and other trees. Tatting is practised by them—the patterns and figures being more elaborate than those of the Pellew people.

Uap is about 108 miles from the Pellews. Until recently the inhabitants travelled across to the Pellews in their canoes, many of which were lost annually. Recently, however, the number of European vessels trading to these islands has been greater than formerly, and passages are readily granted to the islanders to and from Uap to the Pellews, where they dig out and fashion what serves to them as a currency, the vessels returning and picking them up a few months later.

The German corvette *Hertha* called at this group. It happened that a few days before her arrival an Englishman trading on these islands for the Hamburg firm of Godefroï and Sons was robbed and roughly handled by the natives of the northern portion of the group. Captain Knorr, of the *Hertha*, sent for the chiefs, but all the natives young and old hid themselves in the jungle, and it was three days before he could get any of them to come before him, and then only by dint of threats. He made them restore the stolen property and fined them a quantity of

coppra, telling them that any further outrages on Europeans would be severely punished.

On the 28th March the schooner called at Ulleai, which is a group of low coral islands almost surrounded by reefs. There is an Englishman living on this group who informed those on board the schooner that a Spanish man-of-war had been there shortly before, the crew of which had cut down half the bread-fruit trees and a large number of cocoa-nut trees, and that the people were consequently starving and dying at the rate of five and six a day. The commander of the vessel also ordered Williams, the Englishman above referred to, to haul down a flag that he kept hoisted there, and on his refusing to do so a boat's crew was sent on shore to pull the flag down. The commander then gave the natives a Spanish flag and told them to allow no other to be hoisted, but on the departure of the vessel the natives killed the man who had piloted her in and burnt the Spanish flag.

At the time of the *Rupak's* visit to Oulleai, the epidemic above alluded to was raging. This, together with the scarcity of food, was making great havoc among the people, and Williams, the Englishman, stated that he did not expect more than half the natives would survive. They are a fine, well-made race, good featured, light in colour, and are most harmless and inoffensive. This group has at one time been thickly inhabited and there are remains of piers and break-waters similar to those found in the Pellews. The dress of the natives consists of a species of fine mat which they weave from the fibre of the pandanus. This group produces nothing but cocoa-nuts, which with fish is the sole food of the natives.

On the 31st March the schooner hove to off Evalonk and several canoes came alongside. There is nothing to remark about these islands; they are low and of coral formation, producing nothing but the cocoa-nut. The natives traded off flying-fish against tobacco. They are a tall, handsome race, of light colour, their bodies being closely tattooed all over, their dress being the same as that of the Ulleai people.

On the 14th April the schooner anchored in the Hogo-len group under the Island of Tol. The inhabitants of this group have always had a bad reputation, and in 1872 Captain Simpson, of H.M.S. *Blanche*, had occasion to administer a pretty severe chastisement to them. A few canoes came off, but brought only a small quantity of bananas and cocoa-nuts, for which they wanted tobacco. The natives are slightly built, but tall and of fair complexion. Their canoes are very rudely made, when compared with those of their neighbours to the westward, and everything about them seemed to point to a lower type of civilization.

This group is inhabited by two distinct races of people, that to the westward as described above, while to the eastward they are more like Papuans or Negroes, having woolly hair and dark complexions. These two tribes are continually at war with each other, and their notorious inhospitality to strangers is the reason that so little is known of the group; one of the most important in size in the Caroline range. The larger islands exhibited much high land, but very little signs of cultivation were seen. The houses are built on the summit of the hills, which fact is of itself sufficient evidence of the predatory nature of the people. Tortoise-shell can be procured in this group, but only in small quantities. *Bêche-de-mer* is found on the northern group, but fishing would not be remunerative while the natives continue so hostile.

The schooner remained at this group three days, during which time large canoes full of men were seen passing to and fro; and as, from the treacherous nature of the people, apprehensions of an attack were entertained, it was determined to leave, although all the people who came on board had their faces smeared over with red turmeric, the use of which root is an emblem of peace, or of peaceful intentions in the Pacific. The much valued orange cowrie is found here, but none were procured.

On the 19th April the Namalouk Islands were sighted, but as they were surrounded by a barrier reef it was

found to be impossible to enter the lagoon. These islands are covered with cocoa-nut trees and are of the usual low coral formation. The natives do not bear a very good character, no canoes coming off, which is in itself a bad sign.

Leaving Namalouk, the schooner was steered for the Mortlock Islands, which were reached on the 30th April. Although in former years the inhabitants of these islands bore a bad character, they are at present a most harmless and inoffensive race. The Mortlocks consist of three groups, all of low coral formation and thinly inhabited. At the time of the *Rupak's* visit the cocoa-nut crop had failed and the people were very badly off for food. Fish is scarce here, which is seldom the case in the Pacific. A native of Pornapite, or Ascension, is living in the Soatone portion of this group in the capacity of missionary teacher, and there is also an European living on one of the islands.

Shortly after the schooner anchored, a chief came on board and made a statement to the effect that a vessel had been there some three years previously and had taken away about forty men and women. Probably reference was made to a German vessel which is reported to have taken away some of the inhabitants of these islands to Samoa, to work on the cotton plantations there. The people of the group are well built and fair in colour, but of smaller stature than those to the westward. They have a few taro patches, but these were apparently neglected and seemed to produce but little, and their habitations are nothing more than miserable huts with a hole at one end for ingress and egress. The people were shy; the dress is similar to that worn on the Ulleai group. *Bêche-de-mer* was found in the lagoon, but not in large quantities.

On the 27th April the *Rupak* anchored in the lagoon at Nongoura, being the first foreign vessel that had ever visited there. Nongoura is a small group of low coral islands about five miles in breadth. The people of this group are without exception the finest looking, and most friendly and hospitable of all met with in the course of

palms and bread-fruit trees. Shortly after anchoring, a canoe with twelve men approached the vessel; they appeared very much frightened, and it was with great difficulty that they were ultimately induced to come alongside. A few beads and some tobacco were given them, but they did not seem to know much about either.

These people appeared to be of an entirely different race to any that had hitherto been met with, the men being well built but shorter than most of the other Caroline Islanders. They wear their hair very short, use no description of ornament whatever and are not tattooed. The women have their heads shaved close and are dressed in mats which they wear tied round the waist. The islands produce a little taro and brack, but the principal food of the people is the cocoa-nut, of which they have several varieties. No iron implements were seen in use amongst them, and no weapons, with the exception of a small javelin used for striking fish, the chisels with which they fashion their canoes and paddles, and shape wood for building purposes, being made from the shell of the *kima*. There are not more than two hundred inhabitants on the group. More consideration appears to be shown to the women here than to those in most of the Pacific Islands, and the people are hospitable. The *Rupak* remained at the Greenwich Islands about a month, and then endeavoured to go to the Paed Islands, but was prevented by adverse winds and strong currents.

On the 12th July the schooner was off Kaans Island. Canoes came off with tortoise-shell, yarn, cocoa-nuts and turtle eggs, for which beads and tobacco were exchanged. The natives are short in stature, of negro type but without the thick lips. A few of them are tattooed, the noses of all are pierced and have the claws of a small species of crab inserted in the nostrils. The hair is woolly and shaved in the most grotesque manner, *chunam* and different coloured ochres being rubbed in. Every canoe is provided with a large bundle of spears, the shafts of which are of bamboo, ornamented with carvings, the

side. A little tortoise-shell and some yams were got from them. The natives are similar to those of New Ireland, the canoes alike, with the addition of eyes painted in the bows. Some bamboo pandean pipes and a kind of jew's harp were procured from them, being the only things in the shape of musical instruments met with up to now.

The northern coast of New Hanover is not very high, and is flanked by low sandy islands at about a mile from the main land. The interior of the island is moderately elevated, but nothing was seen of the "beautiful plantations" described by *Pampier* and other navigators.

Leaving New Hanover, the *Rupak* made the Portland Islands, which were found to be four in number surrounded by extensive reefs. As it seemed to be a likely place for *bêche-de-mer*, a passage was sought into the lagoon, but none could be found, and it was with reluctance that the schooner was kept on her course. A canoe, however, came off and a few green cocoa-nuts were obtained from the natives, who are similar in appearance to those of New Hanover. On the charts seven islands are marked as forming the group. There appeared to have been a violent storm a little before the *Rupak* visited here, as several large uprooted trees were seen, also banks of rocks which would seem to show that the remainder of the group had been washed away.

On the 13th July the schooner was close to the small Island of La Vandola, which is moderately high and cone-shaped. No canoes came off and there were no signs of a landing place—the sea breaking heavily on the beach. Large fires were burning on different parts of the island, probably as signals.

On the 14th the Island of Jesu Maria was sighted, being a comparatively large island to the eastward of the Admiralty group. In the afternoon several canoes came off and many natives visited the vessel. They are quite a distinct race from the New Ireland and New Hanover people, and have more the appearance of the Uap and Pellew natives, both in features and in colour. They wore the *tappa* with bracelets, armlets and anklets of

small beads very neatly worked. The hair of the young and middle-aged men is fastened up in a knot on the top of the head, done up into a queue behind and decorated with beads and a blue seed or bean, but old men and boys have their heads close-shaved. All were scented with patchouli, bunches of which were disposed about their persons. These people brought off considerable quantities of tortoise-shell of a superior quality, but demanded such high prices that very little trade could be done with them. Hearing that *bêche-de-mer* was plentiful it was determined to heave to until the next day and examine the place.

On the following morning a boat was sent to explore the reef and if possible find an anchorage for the ship, but the search was unsuccessful, as there was no protection from the prevailing winds—the reef being of very small extent and affording no shelter, although on the charts it is marked as very extensive and as surrounding the island. *Bêche-de-mer* of the best quality was found, but it was vain to attempt fishing for it, as no anchorage could be found for the vessel. When the boat went on shore the following morning, there were several canoes on the reef, and the natives being in considerable numbers were inclined to be insolent, the more so when they found the boat's crew was unarmed. The crew, however, got safely back on board and avoided a collision.

Still steering westward, some islands supposed to be the San Miguel group were made the same afternoon, but their position did not, however, agree with that given on the chart. Several canoes came off, the natives seeming very friendly and helping to work the vessel through the reef. At 6 p.m. the canoes were sent away and watches were set for the night, but before daylight the next morning several canoes were seen coming from different parts of the group, and at 7 a.m. a large number were alongside, though as women and children were in several of them, it was supposed they were inclined to be friendly. The anchorage not being considered safe, the mate went away in the long boat to look for a better one. While

he was sounding close in shore, a large number of natives came on to the beach threatening him with spears, and shortly after three large canoes came out and endeavoured to cut the boat off. A few rifle shots were fired over their heads which caused them to retreat, and the boat got safely back to the ship, where preparations were at once made to resist the attack which was imminent and which it was impossible to avoid, as it was a dead calm and way could not be got on the vessel. The canoes now came down upon the schooner in force, but fire was opened upon them, which compelled a retreat. Subsequently, and during the confusion, the natives from the Island of Uap who were on board the schooner got very excited, and taking to the boats, with rifles and spears, went in chase, but unfortunately fell into an ambush a short distance from the ship and were all of them (28) killed. Not having any boats left, they were completely helpless on board the schooner, having only a few natives remaining, the crew (Chinese) being all sick; a volley was fired into the village, doing apparently but little damage, and shortly afterwards the canoes were again seen making to the ship in greater force than before. At this time a slight breeze sprang up, and by its aid the schooner managed to get clear outside the reef, when the wind again died away; and although the canoes still followed, when they found the schooner was clear of the reef, they desisted from pursuit. There is reason for fearing that but a short time previous to this, some foreign vessel, must have fallen into their hands, as European sawn planks, rope and carpenter's tools were seen to be in the possession of the natives, many of whom were also decorated with foreign-made buttons.

The canoes of this people are large and substantially built, and capable of carrying from 40 to 50 men, being outriggered on one side, with a fighting stage on the other. As they all carried fire-places and had appliances for rigging a sort of cabin or protection against the weather, it seems probable that the natives are accustomed to go long distances in them. All the canoes that were alongside the schooner before the

attack were well furnished with provisions, large fish, yams, roast pork and various fruits. They had also large bundles of short javelins, headed with a sort of obsidian or volcanic glass, or a species of flint, which they kept concealed in the bottoms of their canoes.

The people use the betel nut and *piri* leaf. The lime is carried in a gourd, is used dry and is conveyed to the mouth by means of an ebony stick. The two or three villages that were seen appeared to be of small extent, built upon piles and surrounded by a stockade. While the attack lasted, and indeed for some time afterwards, a loud noise of tom-toms was heard, but none were seen in the canoes.

The *Rupak* now rounded the eastern coast of the Island Jesu Maria before alluded to, and several low islands densely covered with cocoa-nut palm were passed. The schooner then coasted along the northern shore of Admiralty Island, which is high and appears to be thickly wooded. No canoes came off, which goes to show that most of the natives in that neighbourhood had been implicated in the recent attack on the vessel.

Leaving the Admiralty Islands, the Anchorites were made, and in due course the group known as the Hermits was reached. Canoes came off, but the bearing of the natives attracted the suspicion of all on board the schooner. But a few months previous, H.M.S. *Alacrity* had visited these islands and administered a pretty severe lesson in consequence of the murder of a Capt. Bird; some of the villages were burnt down and two of the chiefs implicated in the murder were taken to Sydney.

Being short of water, it was intended to call at the Exchequers and fill up from a well which had been dug there in the previous year, and from which a good supply had been obtained. The natives on board, however, begged that the schooner should not touch there, and a heavy shower of rain falling obviated the necessity. The Exchequers consist of a very extensive group of coral islands thinly inhabited by a most miserable and degraded race. They are hostile to all strangers and

continually at war with the Hermit people. In the afternoon of the 25th July Durour Island was made, which is an island about five miles long, low, with a great number of cocoa-nut palms: no natives were seen. From this until the 18th August the schooner was beating up for the Pellews, the weather being very unsettled, currents contrary, and as a rule the winds very light.

On the 25th November the Seragani Islands, lying to the southward of Mindanao, were called at. The Spaniards claim these as part of the Philippines, and they claim also all the islands lying on and above the fifth parallel of latitude as far as Pornapite, the easternmost of the Caroline group. Whalers formerly called at the Serangani Islands to procure provisions, which at certain seasons are cheap and plentiful. The island of Mindanao, the southernmost of the Philippines, is said to be very rich in minerals. Large quantities of bees-wax, coffee and tobacco are produced here, but were difficult to obtain in consequence of restrictions placed in the way of traders. The importation of arms, ammunition, lead, iron and steel is forbidden, but the natives occasionally get supplies from the Serangani Islands, the inhabitants of the latter obtaining them from whalers and other passing vessels in exchange for provisions, which at certain seasons are here plentiful and cheap. Ponies of good size exist here in great number, and game is also plentiful.

Lying to the southward of Seragani are several small uninhabited islands. During the S. W. monsoon the natives of Sangir, an island between the Philippines and the Celebes, come here to catch the hawks-bill and the green turtle, which are then in abundance. These islands produce no food-stuffs except a little sago and arrowroot. From here the *Rupak* passed along to the eastward and made the Tulour group, which consists of three principal islands, over which and the neighbouring islands the Dutch claim sovereignty, but have no officials stationed here. There are, however, two missionaries on the group, appointed and paid by the

Netherlands Indian Government, and at irregular intervals a gunboat calls to enquire into complaints.

The natives of the island have for a considerable time had intercourse with whalers, and at one village named Lerong nearly all the people were found to speak English with tolerable fluency. The northern portion of the group is less known; the inhabitants are said to be unruly and to occasionally pirate small craft belonging to the southern islands. The missionaries referred to above have herds of cattle, the stock of which was imported from the Celebes. Whalers formerly supplied themselves here, but they have been getting scarcer and scarcer every year. At the time of the *Rupak's* visit a bullock could be purchased for a little less than \$10; goats and pigs can be obtained, but they are scarce and dear. The Tulour Islands are moderately high and well wooded; ebony is abundant, a large proportion of the houses being built of it.

Leaving the Tulour Isles, the little known Nanossa group were visited. These consist of seven low-lying islands, producing little worth mentioning except potatoes and tarro of an inferior quality. The natives are dependent on the Tulour people for rice, which is the staple food. The people on this group appeared most industrious, the men building canoes and prahus which they barter for rice with the people of Tulour and Sangir. The women are employed in weaving cloth from a species of hemp and in making mats, both of which find a ready sale to the southward. The houses of these people are large and strongly built of ebony and other hard wood, and in the centre of each building there is a large common room with apartments for from sixty to seventy families arranged round it. Tortoise-shell and *bêche-de-mer* can be got here, but only in small quantities.

Sangir, which was next visited, lies to the S.W. of Tulour; it is high and has an extinct volcano on the west side, with isolated rocks surrounding it. The cocoa-nut abounds here and large quantities of oil are produced. There are about half-a-dozen Chinese located on the island who purchase cocoa-nut oil, giving in exchange goods

of European and Chinese manufacture. This island is more immediately under the control of the N. I. Government, the chiefs paying a small nominal yearly tribute to the Resident of Menado, a town in the north of Celebes, who regulates the succession and invests them with the emblems of chieftainship. There are two missionaries resident here, and at Taruna there is a church and school-house, apparently very little used however.

The natives of Nanossa, Tulour and Sangir are of the same race and speak the same language. Their dress is principally made of native cloth, but the head-dress consists of an European coloured handkerchief.

From here the *Rupak* went to Guam, the principal island of the Ladrone or Mariana group. The chief town, San Luis d'Apra, is about 7 miles from the port, to which the only conveyances are bullock carts. The Marianas are used by the Spaniards as a penal settlement, and at the time of the *Rupak's* visit there were about seven hundred convicts on the islands. Every six months a vessel comes from Manila, bringing provisions. Bread, fruits and cocoa-nuts abound, the former being the staple food of the poorer people, while deer, poultry, pigs and goats are to be had in plenty.

The town of San Luis d'Apra consists of about 400 houses, ninety per cent of which are built of wood, and the remainder of stone and coral, covered with plaster. The cathedral is rather more than 200 years old, the exterior being unimposing and the enclosure around it is neglected and overgrown with weeds. The Vicar-Apostolic, a gentleman who has been many years resident in the Marianas and talks English fluently, was kind and obliging; in fact all the officials were most courteous and appeared anxious to assist in every way.

Guam was formerly a great resort for whalers. On Guam, Rota and Tinian there are a large number of Caroline Islanders who were brought here several years ago and are anxious to return, numbering in all about 800. Rota is used as a convict settlement from Guam, the most unruly of the Spanish

prisoners being sent there. An Englishman has established himself on Tinian. Coasting up, the whole of the Marianas were sighted as were also the Bonins; and Rosario, a small island to the westward of the Bonins, was called at. There was no vegetation here beyond a little grass and sage-bush; the wreck of a junk was seen on the beach. On the 13th September the *Rupak* arrived in Yokohama.

ASIATIC SOCIETY OF JAPAN.

A regular meeting of the Society was held on Wednesday, the 13th instant, at the Grand Hotel, Yokohama. In the absence of the President and Vice-Presidents, Dr. Hepburn occupied the chair.

The minutes of the last meeting, held in Tôkiô on the 22nd November, were read and approved, and the election at the meeting of the council on the 8th instant of the Revd. A. L. Amerman as a member of the Society, was announced.

Mr. Russell Robertson then read a paper on the Caroline Islands.

Mr. J. C. Hall made some interesting observations on the two races that are found in the islands of the Pacific, remarking that our knowledge of the Brown, or Malay Race, is far in excess of that which we possess of the Black Race; and added some information respecting the languages or dialects spoken.

Mr. Cole, a visitor, stated that in consequence of the falling off of the yield in the pearl fisheries off the north of Australia, expeditions to the Caroline Islands were more frequently fitted out from Singapore than had hitherto been the case. He thought that the hostile disposition shown at one of the islands might possibly be considered as an indication that kidnapping had been practised at that particular island.

The Chairman then expressed his sense of the value of the paper, and requested Mr. Robertson to convey to its author the thanks of the Society.

NOTES OF A TRIP TO VRIES ISLAND IN JULY 1872.

BY

J. L. HODGES, Esq.,
H. B. M.'s Consular Service.

*Read before the Asiatic Society of Japan, on the
3rd January, 1877.*



ON my arrival at Misaki from Yokohama I commenced to make enquiries about the best means of getting to Ōshima, or as it is generally styled by Europeans, Vries Island, and was informed that the distance to it was eighteen *ri*, and that I could reach it either in a *bin-sen*, or a passenger boat hired by a number of persons, which might be starting in a few days,—or by a *shi-tate*, or express-boat of my own,—*when the wind changed*. The wished for change, however, did not occur till the following morning, when, not being able to find a boat ready to start, I was obliged to charter one on my own account for six *riyōs* and a half, and started in the grey dusk for Ōshima with six sturdy boatmen and a large boat.

After a pleasant sail of about six hours we came within about a couple of miles of the coast, and from this time our progress became slow in the extreme, and the current, which here runs at the rate of a mill-stream, required my boatmen to use their best exertions to make any headway against it. At the same time, the swell caused by the

current meeting the waves raised by the wind rocked our boat about in rather an unpleasant manner. Seen from this point, Ōshima presents a bold and rugged appearance. The volcano, however, is not visible.

After a severe struggle my boatmen managed to gain the channel, and keeping in close to the western shore of Ōshima, to avoid the current, sculled slowly on through a sea as unruffled as a mirror. The coast of the island, now on our left, is here low and dark in colour,—showing evident traces of volcanic action,—but at the distance of a mile or so inland rises the range in which the volcano lies. Fish seem to be in abundance. For not only were they leaping out of the water near our boat, but all along the shore every rock seemed provided with a man and fishing-rod.

At about 1.30 p.m. we at last arrived opposite to the village of Motomura, which from the sea does not present a very populous aspect. There is no regular harbour or landing-place, but the water is deep close up to the shore, and we easily gained *terra firma* once more. Here, however, my difficulties commenced. I in vain enquired for an inn or place of refreshment, but was informed there was nothing of the kind on the island. I then betook myself to the *nanushi*, or headman of the village, Mr. Seizayemon, who at first declared he could not receive me, and that his duty compelled him to send me back to Yedo, as foreigners were not permitted to land on the island. On representing, however, that I had only engaged the boat to come here, that the wind was adverse,—and perhaps mollified by some other soothing influence—he at last yielded, and consented to house me himself till I should obtain a boat to proceed to Shimoda. Once having relented, he proved a most attentive host; the greatest kindness was shown me by himself and family, and on my departure he refused to accept the slightest remuneration.

Motomura, the village in which I had thus succeeded in establishing myself, is the largest of the six upon the island. The names of the others are respectively Ōkata, Sendzu, Nomashi, Sashijiji, and Habu. The last named

has a picturesque and landlocked little harbour. The population of the whole island is about four thousand. It, and the other six islands in the same group, are under the jurisdiction of the Ashikara *ken*. They are named Toshima, Miake, Niijima, Hachijō, Mikura and Kōzu. All are populated. Ōshima is the most northern of the group. It is about eight miles in length and five in breadth.

On first landing on the island my attention was immediately arrested by the appearance of the inhabitants, especially the women, who differ in many respects from the people of the mainland. They seemed to me to be taller, fairer in skin, and better favoured. The women dress their hair in a different manner. It is never shaven, even in youth, but simply thrown back from the forehead and tied in a knot behind; the married women thus forming one long chignon, which is generally worn to the side of the back of the head, the remainder of the hair flowing part of the way down the neck; while the unmarried women tie the knot in the middle, so as to make a bow, with the ends sticking out at both sides of the back of the head. The women also wear a peculiar embroidered band or cap on the head. This is generally of a blue color, and has a white or coloured crest in front. They also have a kind of petticoat, round the skirt of which the same embroidery, etc., is worked. The dress of the men, however, does not differ from that of ordinary Japanese, and their hair is worn in the same fashion. It is also worthy of remark that the women, married or single, do not blacken their teeth; that there is not a single *samisen* or musical instrument on the island; that dancing is unknown; that there are no public baths, etc., and that concubinage does not exist. That the inhabitants are peaceful may be argued from the fact that they possess neither swords nor fire-arms; and that their habits are simple may be concluded from the circumstance that in the only semblance of a shop in the village of Motomura, the greater part of the business was carried on by barter, and money seldom used. They live by fishing, and exporting cherry-tree wood to Yedo. There

is no rice grown, and the only crops grown are a little corn and sweet potatoes. The soil is dark, or dark-red, and evidently pulverized volcanic rock. Indeed the very stones on the sea-beach are of the same material, and closely resemble those I afterwards saw on Fuji-san. The country is well wooded, but not many of the trees are of any size. The general work seems to be done in great measure by the women, who, curious to say, carry all burdens on the head. On the evening of my arrival I was much amused to see them coming down in troops to draw water from the well (of which there is only one in the village), each one with her pail balanced jauntily on her head, and her blue cap, set perhaps a little to one side, giving her a coquettish appearance. On the morning of my departure, too, a junk was being loaded with cherry-tree wood for Yedo, and the beach was covered with women and girls bearing down the bundles upon their heads, then skipping lightly along the plank between the vessel and the shore, and, with a graceful motion of the neck, tossing them on board.

Above the village, and near the centre of the Island, is the crater of Mihara-yama. This is a volcano still in partial action,—that is, from time to time smoke issues forth, and a smell of sulphur is perceptible. At night, too, the glare at its summit occasionally serves as a beacon to the sea-farer. It is situated about three miles from Motomura, and the ascent is rather difficult; not only is it very steep, but the debris of former eruptions renders walking a very tiring operation. In height I should judge it to be about 2,500 feet. The crater itself is oblong in shape, and from 800 to 1,000 yards in length, by about 50 or 60 yards in breadth. There are marks of the lava having extended in three directions. I could not distinguish anything inside the crater but a mass of seething vapour, with what the Japanese accompanying affirmed to be smoke.

On descending from the mountain, I was carried off by my host to witness, not a bull-fight, but what might be termed a "bull-wrestle," which seems to be a favourite amusement at Ōshima. Two bulls were brought down to

the beach, and stationed on little hillocks, facing each other. At a given signal they were let loose and rushed down to the encounter. They met in the centre, where they locked their horns together, and pushed and struggled in the most scientific manner, to the great delight of all the inhabitants of the village. The conflict ended by one of the bulls pushing the other over, when they were with difficulty separated. I should mention that there are numbers of good cattle on the Island—there are also some horses, and three dogs which have lately been introduced.

The dialect used by the people differs very considerably in pronunciation from that of Yedo or the neighbouring mainland of Idzu, and in sound, when spoken, one is reminded of Chinese, as there is a sort of sing-song about it not heard in Japan. The last word of the sentence is also prolonged, and the voice seems to rise towards the end.

Ōshima is said to be the Island to which the mighty bowman Minamoto Tametomo was banished by Yoshitomo, and here he performed his famous exploit of sinking by his arrows one of the vessels of Kanô no ské, who had been sent to attack him. From Ōshima Tametomo is said to have gone to Liukiu, and from this fact some persons trace a connection between the inhabitants of this group of islands and the Liukiuans.

July 4th, 1872.

ASIATIC SOCIETY OF JAPAN.

A regular meeting (deferred from December 27th, 1876), was held on Wednesday, the 3rd January, 1877, at the Society's Library, Tōkiō; the President, Sir Harry S. Parkes, in the Chair.

After the usual reading of the minutes, the names of the following new members were announced:—Messrs. Geo. Cawley, John Hunt, H. R. Elliott, W. N. Whitney, F. B. Walsh and Wm. Bramsen.

The Library Committee reported a considerable number of books as absent from the shelves, and that some one had taken the liberty of cutting out a portion from the Society's book of scientific extracts.

The Secretary *pro tem.* presented a request, made through Mr. Wilkin of Yokohama, from an antiquarian friend in England, asking for a collection of Palæolithic flint implements, if to be found in Japan, the search for these memorials of the remote past having been renewed of late with great earnestness.

Mr. Longford then read his translation of a Japanese account of the Island of Hachijo; explaining that it was little more than an outline of a fuller account which the native author was about to publish, giving details of his residence of two years at this remote settlement.

The President remarked that the subject of the paper had great interest on many accounts; as exhibiting a condition of things very unlike what appears in other places under Japanese jurisdiction; as illustrating the policy of making penal settlements on outlying islands; as a place laid down on our Admiralty charts by the name of "Fatsisio—place of exile "for the grandees of Japan," &c. It is the last of a chain of islands extending southwards from Vries (Ōshima) and is seldom visited: the *Actæon* visited it in 1861 and reported unfavourably of the anchorage. One would wish to know whether the frightful punishments described were things of the past, or were still practised, and if so what could be the necessity for them.* It is to be hoped, therefore, that we may soon have access to the large work promised by the author.

Prof. Grigsby doubted whether it was desirable to publish the account, as we now have it: it might be better to wait until fuller, and perhaps more reliable, statements were before the members.

Mr. Hodges read, as illustrating the subject, some interesting notes he had made of a visit to Vries Island.

* The President has since ascertained that these severe punishments have been discontinued.

The President remarked that the similarity of some of the customs described by Mr. Hodges with those observable in Loochoo, gave additional interest to the subject of the condition and ethnology of the people living in these various islands.

Mr. Bramsen said that we might even hope to gain more information on this subject, as the Japanese Government were understood to be about establishing communication with the Bonin Islands, by steamers which would probably touch at Hachijo *en route*. He had heard descriptions of this latter island very diverse from that given in the paper.

Sir. H. S. Parkes stated, with reference to the second paper which had been announced,—on the monastery of Koya Zan—that the lateness of the hour, and the extent of the subject deterred him from entering on its consideration at the present time. He gave, however, a general outline of the topic, showing its interest and importance.

By a unanimous vote of the meeting the President was requested to favour the Society with a fuller discussion of the subject at his earliest convenience.

JAPANESE NEW YEAR CELEBRATIONS.

BY

MRS. CHAPLIN AYRTON.

*Read before the Asiatic Society of Japan, on the
24th January, 1877.*

The most striking feature of New Year's day in Japan is the decoration placed with more or less completeness before every portal. Each object of which the decoration is composed has, as might be supposed, a symbolic meaning. Suppose the spectator to face the green arch; on his right will be a *Me-matsu* (*Pinus densiflora*, Fam. *Coniferæ*) with its reddish stem, and on his left will be the black trunk of the *O-matsu* (*Pinus thunbergius*, Syn. *Pinus massoniana*). Although pines are monœcius, fancy has attributed to the black-trunked tree a masculine,—and to the lighter tree,—a feminine sex. Further, these hardy trees symbolize a stalwart age that has withstood the storms and struggles of existence.

Immediately behind the pines, rises on each side the graceful stem of the *Take-no-ki*, or bamboo, of which any kind that is convenient is selected. Its erect growth and succession of knots marking its increase during succeeding seasons, render it a symbol of hale life and a fullness of years.

The distance, of usually about six feet between the bamboos, is spanned by a grass rope (*nawa*). Although convenience obliges this rope to be sufficiently high to allow of passage beneath, it should, to accord with its symbolic meaning, debar all bad and unclean things from crossing the threshold.

In the centre of the arch thus formed of pines, bamboos,

and rope, is a group of several objects. The most conspicuous is the scarlet *yebi*, or lobster, whose crooked body betokens the back of the aged bent with the weight of years. The lobster is embowered amongst *yusuri* branches. In this *yusuri*, (*Melia japonica*, Fam. *Meliaceæ*) when the young leaves have budded the old leaves yet remain unshed. So may the parents continue to flourish, while children and grandchildren spring forth!

In the centre also are the graceful fronds of the *shida* or *urajiro*, the *Polypodium dicotomon* of Thünberg. This fern symbolizes conjugal life, because the fronds spring in pairs from the stem. These uniform graceful leaves might suggest dangerous ideas of the equality of the sexes, but the simile has not in Japan been pushed to so desperate a length. Between the paired leaves nestles, as offspring, the little leaf-bud. Here and there are quaintly cut scraps of white paper, the *gohei*, or offering to the Gods. The form of the paper is said by some to be a conventionalized representation of a human form—that of the offerer,—devoting himself thus in effigy to the deities.

Almost as conspicuous as the lobster is the orange-coloured *Daidai* (fruit of the *Citrus bigaradai*, Fam. *Citronaceæ*). It enacts a pun, the second meaning of the word *daidai* being "generations," thus intimating a wish that the family pedigree may flourish. The juice of the *daidai* is much prized as a remedy against vomiting. This is interesting because the juice of lemon, also a citronaceous plant, is often considered by Europeans a palliative for sea-sickness. Also in the nature of a pun is the piece of charcoal, *sumi*, that word signifying the homestead.

The *honta-wara* or *zimbaso* (*Halochloa macrantha*), is a sea-weed that is a memorial of good fortune, for once upon a time, about A. D. 200, when Queen Jingō-kōgō reigned, she, concealing her husband's death lest the troops should be discouraged, headed a campaign against Corea. Her troops stationed at the margin of the sea were in danger of defeat on account of the lack of fodder

for their horses. However, she ordered this *honta-wara* to be plucked from the shore, and the horses invigorated by their meal of sea-weed rushed victoriously to battle. At the close of the war Jingō-kōgō gave birth to a son, *Hachiman*, who, appropriately to the circumstances of his birth, became the Mars of Japanese mythology.

Another sea-weed decoration is the *kobu* or *Laminaria saccharina*. The word is a pun bearing on the verb *yorokobi*, which means to rejoice, to gladden.

The last of this group of decorations is the *fuku-tsutsumi*, a square piece of white paper tied up as a bag by a red and white string, *mizu-shiki*, that marks a present. It may be considered as a lucky bag, for its contents are offerings suitable to the season as,—

Kachi-guri,—roasted chesnuts.

Kazu-no-ko,—the roe of the herring (*nishin*).

Kaya-no-tane,—the seeds of the *Torreya nucifera*, Fam. *Coniferae*, used in the making of sweetmeats.

Kushi-gaki,—the fruit of the *kaki* (*Diospyrus kaki*, Fam. *Ebenaceae*) dried on a stick or *kushi*.

The New Year arches are cut down in Tōkiō on the 7th of January, and in some places on the 3rd of January.

Another decoration is the *Daikoku-jimé*, a miniature ship of twisted straw containing representations of bales of grain, bits of green and little ornaments, as fancy dictates. The idea of the ship is that of an offering of first fruits. In order to bring the sleeper lucky dreams, it is customary on the night of the 2nd of January to cover the pillow with a rude picture of a *Takara-bune*, or ship of riches, in which are seated the seven Gods of wealth, *Bishamon-sama*, *Fukurokujiu*, *Benten-sama*, *Jurōjin-sama*, *Hotei-sama*, *Daikoku-sama*, *Ebesu-sama*.

The little New Year heap of some two—more usually three—round rice cakes, (*mochi*) of graduated size, piled one above the other and conspicuously placed on a lacquer stand, may be regarded partly as ornament, and, having served this purpose, are eaten on the 11th of January. At the close of the old year these *mochi* cakes are plentifully

displayed at shops, and are also made by parties of three men who go about the streets for hire, provided with an oven, a bottomless tub, and some matting to replace the bottom, all carried slung on a pole and borne on the shoulders of two of the men. The third man carries a heavy mallet for the prolonged striking of the paste with resounding thuds, when, to prevent rebounding, the sticky mass is placed on the soft mat in the tub. He also bears a board answering the purpose of a pastry-board on which to make up into form the well-beaten cake.

Another feature of the New Year is the universal *visiting* when the orthodox greetings are,—*Shin-nen no go shiugi wo mōshi-agemasu*, or more simply *omēdetō*. The Japanese equivalent of a new year's gift is made at the end of the old year and is called *seibō*; however as a matter of convenience the present-giving is often combined with the new year visiting.

The *games* played at this season of the year are very suitable. The girls dressed in their best, which has been carefully hoarded during December, or better still in new clothes, with gaily ornamented battledores, of usually *kiri* wood (*Paulownia imperialis*, *Fam. Scrophularineæ*), strike briskly the airy little shuttlecock made of the black seed of the *muku* (*Homoioceltis aspera*, *Fam. Celtideæ*) winged with feathers and decorated, singing out the while,—

Hito-go ni futa-go—mi-watashi yo-mé-go

Itsu yoni musashi—nan no yakushi

Kokono-ya ja—to yo.

or,—

Hitori no musumē wo—futari shitē

Miru tabi yoru tabi—itsu shika mudzu-kashi

Nan no yakushi—kokono-ya torasho

Both these songs, it will be seen at once, are rhymes of the numbers up to ten.

Another pastime is the *ball* made of paper and wadding and symmetrically wound about with thread or silk of various colours. A popular song of the ball, playing on the numbers is,—

Hi, fu, mi, yo—mi yō no yoshida no

Katasumi oroshitē—kiri ni kizandē

*Tamoto yé iréru—tamoto ga nuréru
Kiyomidzu kiyomidzu—kiyomidzu no
Sambon yénoki ni—sudzumé ga samba
Tōmatta—ichi-wa no sudzumé ga
Hato ni owarété—aré ga chiu chiu
Koré ya pō pō—madzu ikkan kashimashita.*

or,—

*Mukō mīshai—shin-kawa mīshai
Odawara nanushi no—naka musumé
Iro-jirodé—sakura itrodé
Yédo-zaki shiwo ya yé—morawaréta
Sono shiwo-ya ga—daté no shiwo-ya dé
Kotoshi wa nāni wo—kisémashō
Kin-ran don-su ni—ai murasaki wo
Nana kasané—nana kasané
Ya-kasané kasanété—someté okureyo
Kōya san—kōya naraba
Somété mo shinjo ga—kata ni nāni wo
Otsuké-yaru—yukifuri ni
Mumé no ori yéda—sakura no ori yéda
Naka wa Gōjō no—sori hashi
Sono hashi wo—wataru hito té
Wataranu hito toté—chokin chokera ko to
Kokin kokera ko to—chaya no musumé ni
Utaréta—utaréta ga
Memboku nai toté—karasu-gawa ye
Mi wo nagéta—mi wa shidzumu
Kami wa ūkédō—sazo ya tonogo no
On kokoro—madzu ikkan kashimashita*

A Japanese lady has kindly given me a rendering of this song, of which an exact translation would be difficult, as the song is old. The sudden transition of subject towards the end looks, she thinks, as if some part of the song had fallen into disuse. The tale runs thus:—

“See opposite,—see, Shin-kawa!

“A very beautiful lady who is one of the daughters of a chief magistrate of Odawara-chō. She was married to a salt-merchant. He was a man fond of display and he

thought how he would dress her this year. He said to the dyer: "Please dye this *Kinran* and *Donsu*, and the purple for the middle dress into seven or eight-fold dresses," and the dyer said. "I am a dyer and, therefore, I will dye and stretch it: What pattern do you wish?" Either the dyer or the merchant reply: "The pattern of falling snow, and broken twigs, and in the centre the curved bridge,—*Gojo*."

"Crossing or not crossing this bridge *chokin chokera*, *kokin kokera* (these words are inserted to fill up the rhythm and have no known meaning). The girl was struck here and there and the tea-house girls laughed; put out of countenance by this ridicule she drowned herself in the *Karasugawa*, the corpse sunk, the hair floated. How full of grief the husband's heart,—*now*, the ball counts one hundred!"

Sometimes during a game of ball, simple counting of how many rebounds can be kept up seems to be going on; the counting is, however, a regular game of debit and credit as I have endeavoured to explain in the following table.

FIRST TURN.

A KEEPS UP 100 BOUNDS.

| A's Account. | | B's Account. | |
|--|-------------------------------------|--------------|-----------------------------|
| A lends B | A pays back to B | B lends A | B pays back to A |
| — | — | — | — |
| 100 | \| |  |  |
| | 2nd Turn, B keeps up 60 bounds. | | |
|  | \| |  | (and still owes A 40) 60 |
| | 3rd Turn, A keeps up 30 bounds. | | |
| | | | |
| This with previous debt of 40 makes 70 that A lends B | 4th Turn, B keeps up 100 bounds. | | |
| 30 | \| | 30 | 70 |
| | 5th Turn, A keeps up 20 bounds. | | |
| | 20 | 10 | |
| | and so on. | | |

The boys specially devote themselves to kite-flying. The kites are constructed of Japanese paper which is both thin and strong, and having light bamboo frames, they fly very easily during this season of prevalent winds, and produce a loud humming noise due to a piece of whale-bone which is attached to the kite being set in rapid vibration by the wind.

For bad weather, or amongst those who have ceased to care for these active sports, such games as *Jiu roku mu-sashi*, in which the board is divided into squares and diagonals on which move sixteen men held by one player, and one large piece held by the second player. The point of the game is either that the holder of the sixteen pieces hedges the large piece so that it can make no move, or that the big piece takes all its adversaries; a take can only be made by the large piece when it finds a piece immediately on each side of it and a blank point beyond. *Sugo-roku* is entirely a game of chance. It consists of a sheet of pictures,—educational pictures are at present fashionable—but the oldest *Sugo-roku* is *Dōchiu Sugo-roku*, and is the journey between Kiōto and Tōkiō. The players write their names on slips of paper, or anything, and throw in turn a die; the slips are placed on the pictures whose numbers correspond to the throw. At the next round, if the number you throw is written on the picture, you find directions as to which picture you move forward or backward to. You may, however, find your throw a blank and have to remain at your place. Winning consists in reaching a certain picture.

Making verses, something like our own paper games; simple lotteries, or *Fuku-biki*, for various objects, and card playing, *Karuta*, are popular amusements.

The passing *Tori-wo-oita*, a strolling *samisen* woman-player, or a party of *Kagura* performers are called in to afford pastime to the spectators; the latter by the quaint animal-like movements of the draped figure who wears a huge grotesque scarlet mask on his head, and at times makes this monster appear to lengthen and retreat its neck by an unseen change in position of the mask from

the head to the gradually extended and draped hand of the actor. The beat of a drum and the whistle of a bamboo flute form the accompaniment to the dumb-show acting.

The 3rd and 4th of January are conspicuous days of the New Year. They are the "going out days" (*desomé no hi*) of the fire-brigades. There are about fifty brigades in Tôkiô, each numbering 50 to 70 men. The men rally at an appointed place and form a procession to carry their new standard (*matoi*), ladders, lanterns, etc. This procession pauses at intervals, when the men steady the ladder with their long fire-hooks, whilst an agile member of the band mounts the erect ladder and performs gymnastics at the top; his performance concluded, he dismounts and the march is continued, the men, as before, yelling joyously at the highest pitch of their voices.

ON THE USE OF "PILLOW-WORDS" AND PLAYS UPON WORDS IN JAPANESE POETRY.

BY

BASIL HALL CHAMBERLAIN, Esq.

*Read before the Asiatic Society of Japan, on the
24th January, 1877.*



The subject which I beg leave to introduce this evening to the notice of the Society is one which, notwithstanding its connection with the most delightful of all arts, cannot, I fear, but incur the charge of dulness. Dull and dry, however, as the technicalities of Japanese versification may be, I hope to show at the close of this paper that they are yet deserving of your attention, and that what might at first sight appear to have no possible interest save for the critical student of a bygone literature, may, after all, prove of practical value, even at the present day, to a large and influential portion of the foreign community.

Japanese Poetry, though scarcely as yet well explored, cannot exactly be called an unknown region; and it may, perhaps, be permitted me to take for granted that most of the members of this Society are, at least, so far acquainted with it as to know that (except in the case of a very few and very unsuccessful imitations of Chinese models) the prosody of this country knows nothing either of

rhyme, assonance, alliteration, accentual stress, quantity, or parallelism. Of what it has *not* got,—or, to speak more correctly, of the reasons *why* it has not got any of these peculiarities, some one or other of which, at least, has seemed necessary to all the other nations of which we have any knowledge for the proper distinguishing of poetry from prose, it does not fall within the scope of this paper to speak,—the peculiarities which it *has*, in contradistinction to the prosodies of other countries, forming a more fruitful subject of enquiry. We find, then, besides the well-known cadence formed by alternate lines of five and seven syllables,—that the chief characteristic of the classical poetry of Japan is the use of the so-called *Makura-Kotoba*, or “Pillow-Words,” and of Plays upon Words,—the “Pillow-Words” being more abundant in the earlier, and the Plays upon Words in the later portion of the classic age. (By the earlier period, I mean the centuries preceding the compilation of the *Manyō-shū* in or about A.D. 753.) It will be convenient to take these two branches of the subject in the chronological order thus indicated, and to commence with the “Pillow-Words.”

What, then, is a “Pillow-Word”? Its name indicates tolerably clearly its meaning: it is a word, itself destitute of life, on which the succeeding significative word, as it were, rests its head. The term *Kamuri-Kotoba*, i. e. “Hat-Word,” which is preferred to that of “Pillow-Word” by the great scholar Mabuchi, sets forth the nature of this class of expressions in an equally intelligible manner. “But what,” it may be objected, “can be the possible use “in a sentence of words which are, you say, destitute of “life, by which you mean, I suppose, destitute of meaning?” To find a direct answer to this question would be rather embarrassing; but, perhaps, an illustration drawn from our own English usage may help to elucidate the matter. When we speak of “the gallant Captain,” “the learned Professor,” “His Holiness the Pope,” His Majesty the King,” do we really mean to say that, after due deliberation, we consider those persons to be respectively gallant, learned, holy and majestic? Or, again,

are all "honourable members" of Parliament or Congress men filled with high notions of honour and deserving to be honoured by us? What, then, do such expressions mean? The simplest reply is that they mean nothing at all,—that we use them for no other reason than that other people have used them before us, and that it has become the custom to use them. But they *ought* to mean something, and not only so, but they *did once* mean something. In olden times, none but the gallant and courageous were chosen as the leaders of hosts; none but those reputed to be filled with all Christian grace and holiness were ever raised to the Papal throne. In our days, the *thing* has, to a certain extent, vanished, while the *word* (for words are more long-lived than things) remains. This is the gist of the matter, the "Pillow-Words" which we are discussing being, as a rule, simply epithets that were formerly applied quite naturally and appropriately to various objects, places and actions, but which in most cases, by the process of phonetic decay, by being used in connection with expressions having but a very distant affinity to the expression they originally served to define, or by application to words whose only connection with the original words is that they commence with the same syllable as the latter, have suffered such changes either in their own substance or in the connection in which they are used, as to have become almost unrecognisable, and practically devoid of meaning. Take, for instance, the "Pillow-Word" *hisakata no*, written with the characters 久堅之 ("enduring and hard"), and constantly found in poetry before the word "sky." The characters seem appropriate enough to form an epithet to be applied to the heavens; but, as a matter of fact, they rest on a mistaken etymology. The word *hisakata* should be written *hisagata*, and is a contraction of *hisago no katachi* ("the shape of a gourd"),—an expression which, though scarcely graceful according to European ideas, is yet very graphically descriptive of the apparent form of the firmament. Soon, however, the original meaning was so completely forgotten, that, down to the present day, *hisakata no* is used as a "Pillow-Word,"

not only for the heavens, but for a whole number of things connected with the heavens,—even for the light, a phenomenon which has certainly no connection with a gourd, and for the Imperial residence, which may indeed have been heavenly in its splendour, but is hardly likely to have been built after the pattern of a pumpkin. This system of what might be called “*ex officio* epithets” has received enormous extension; and herein, and in its application as a poetical ornament, lies the peculiarity. Some of the “Pillow-Words” are used before one other word only, others before whole classes, as in the case of *hisakata no* given above. Some are of rare occurrence; but the Japanese scholar or versifier remembers all those in common use just as we remember our irregular verbs or the vagaries of our English orthography,—viz. simply by remembering them. Even in prose, “Pillow-Words” may occasionally be met with; but it is only in an extremely ornate style of prose, such as is, for instance, to be found in prefaces to collections of poems.

To pass on to particulars, it may be stated that the words of which we are treating always occur in the five-syllable, never in the seven-syllable lines of a poem. Those which themselves extend to the length of five-syllables in the immense majority of cases take no postposition, as, for instance, the word *kusamakura* applied to journeys, or *chihayaburu*, now applied to all divinities indiscriminately, but properly belonging only to bad gods, or to bad and powerful men. Some few of four syllables likewise take no postposition, as *soramitsu*, the “Pillow-Word” for the province of Yamato; while a very small number indeed may be found followed by one of the postpositions *ya*, *ni* and *wo*. *Amatobu ya*, *wagimoko ni*, *fusumaji wo* may serve as examples. But by far the greatest number of four-syllable “Pillow-Words” take the postposition *no* (“of”). *Hisakata no* explained above, and dozens of others will at once recur to the student’s memory. “Pillow-Words” of less than four syllables are extremely rare.

So much for the outward form. In regard to the derivation and inward meaning, the “Pillow-Words” would

seem to have been considered by Mabuchi as falling into five separate classes. But a European will find the following four-fold division more convenient :

I. Descriptive words or phrases of the nature of an adjective or of a simile, that have suffered no phonetic change and are still employed in their original connection. The "pillow" for the verb "to yearn" may serve as an instance. It is *nakukonasu*, and means : "in the manner of a weeping infant," which is a pretty phrase to describe yearning. A slightly more difficult example is offered by *sakigusa no*, the "pillow" for *mitsu* (three) and *naka* (middle), where the origin of the connection lies in the fact that the *sakigusa* plant is a lily, whose stem always divides at the top into *three* flower-bearing stalks, and when three things are in a row, one of them must of course be in the *middle*. Other subdivisions of this class are formed by "Pillow-Words" founded on the *lucus à non lucendo* principle, or furnishing examples of substantives which are, by an inverted process, employed to qualify adjectives.

II. Words or phrases originally similar to those comprised in the first class, but now differing from them, inasmuch as letter-changes or application to words other than those they originally served to define have obscured their meaning. The already quoted word *hisakata no* belongs to this category ; and another instance is furnished by *shikitahe no*, where the change is, not in the term itself, but in its application. Signifying "made of finely woven stuff," it was at first naturally used as an epithet for clothes, and especially for sleeping apparel. Later on, however, the true meaning was so completely neglected, that the phrase was applied first to the bed in which the sleeping apparel is worn, and next to the house in which the bed is situated, and even to the Japanese pillow, which is, as any of us who have travelled in the country may know to our cost, made of anything rather than soft stuff.

III. Words or phrases alluding to some historical or mythological occurrence. For instance, *hayabito no*,

which serves as a "pillow" to the province of Satsuma, is explained by the best authorities (though some commentators, it is true, contend for another interpretation, but also an historical one) as owing its origin to the fact that, in the earliest ages of Japanese history, the *haya-bito*, i.e. the soldiers who kept guard around the Mikado's palace, were always Satsuma men. *Soramitsu*, one of the "pillows" for the province of Yamato, has a mythological origin, while *tachibana wo*, used before the surname Moribé, reminds us of the introduction of the orange into this country in the reign of Suijin Tennō. Under this heading may be classed a few ancient names of places, which have sunk down into the condition of mere "Pillow-Words" one for another.

IV.—Punning words or phrases. The ambiguous position of this class, placed, as it is, between the "Pillow-Words" on the one hand and the more regular plays upon words (to be presently discussed) on the other, has given rise to many differences of opinion among those best qualified to pronounce on such a matter; and numbers of expressions that are admitted into the category of "Pillow-Words" by one authority are rejected by another. Without entering into this discussion which is essentially a barren one, it may be sufficient (always following Mabuchi, as a mere foreigner may be well content to do) to quote, as an example of the punning "Pillow-Words," *koromodé no*, which means *sleeve* and is used before the name of the province of Hitachi, because the first two syllables of the letter (*hida*) signify *folds*,—the sleeves worn in ancient times being narrow and so long that they had to be folded or turned up when a man wanted to do any work. *Momotaradzu* (literally, *less than 100*) is similarly used as a "pillow" for phrases or names of places beginning with the syllables *yaso* (an old word for 80) or *i*, considered as an abbreviation of *iso* (an old word for 50). The first, second and fourth classes comprise the great majority of the words which we have been considering; but it may be remarked that not a few of them belong to two classes at once. Thus *kankazé no*

owes its connection with the name of the province of Isé, in the first place to a piece of mythology and in the second to a play upon words. A consideration of all the peculiarities of the "Pillow-Words" would, however, require a long treatise, and it may be as well here to leave this portion of the subject, merely pausing to state that on it, as on so many other branches of the native erudition, the celebrated Mabuchi is recognised as the greatest authority. His "Considerations on the Hat-Words,"—a work in ten volumes,—appeared in the year 1757; and a continuation of the same, in seven volumes, was published in 1801 by his follower, Uhéda Akinari. The total number of "Pillow-Words" explained by these two authors is 667. Other minor works have long been in current use; and some of them, which are mere alphabetical lists of significative expressions each accompanied by its proper "Pillow-Word," may be said to fill in this country the place occupied in Europe and in China by rhyming dictionaries.

I now pass on to the consideration of plays upon words, which have been noted as the second peculiarity characteristic of Japanese versification. The native literati are silent on the subject, probably because it has appeared to them so simple as to call for no special comment; and here, too, it may be disposed of in half the space devoted to the elucidation of the more obscure category of the "Pillow-Words." There are three classes of plays upon words;

I.—What is called by the Japanese a "Preface" or "Preparation," and what we might perhaps term a "Punning Introduction." The 18th ode of the well-known *Hiyaku-nin Is-shu* collection affords a good example. It runs thus:

Sumi no yé no
Kishi ni *yoru* nami
Yoru sahé ya
Yumé no kayohi-ji
Hito-mé yokuran.

In rendering this ode into English, we must translate the last three lines only, whose sense is: "Even at night,

on the thoroughfare of my dreams, I will avoid the eyes of men." The first two lines, literally rendered, would run thus: "The waves breaking on the shores of the Bay of Sumi." But their sole use is, by means of the verb *yoru*, which here signifies "the breaking of the waves," to make a Punning Introduction for the word *yoru*, which means "the night-time." So far as the real subject of the little poem is concerned, they are entirely meaningless. The student of the *Manyōshū* will perhaps here call to mind a very remarkable instance of the use of "Punning Introductions," which occurs in the 13th volume of that collection in a poem commencing *Komoriku no Hatsusé no kaha*, where no less than the first ten lines have no connection whatever with the elegy that follows, and serve simply and solely as a "Punning Introduction."

II. Plays upon words similar to the ordinary European pun. Into this class, if we follow Mabuchi, will fall many expressions commonly regarded as "Pillow-Words." The following is an example:

Matsu ga né no,
Matsu koto tohomi, &c., &c.

which may be nearly literally rendered into English, pun and all, by the line:

Like to the *pine*-trees, I must stand and *pine*.

III. A more complicated species of pun, occurring when a word with two meanings is used only once as a sort of pivot on which two wheels turn. In this case, the first part of the poetical phrase has no logical end, and the latter part no logical beginning. Of the three kinds of plays upon words, this is certainly the most characteristic; and none has been in greater favour from the ninth century down to the present day, when, amidst the rapid decay of almost everything else of native origin, the peculiar poetry of Japan, which had already emerged in all its pristine vigour from the inundation of the Chinese learning, bids fair to weather the more destructive storms of the oncoming civilisation of the West. The following

stanza from the *Kokinshū* will give an example of what might be termed "Pivot-Puns:"

Shikitahe no
Makura no shita ni
Umi ha arédo
Hito wo *mirumé* ha
Ohidzu zo arikéru.

Paraphrased into English (and thereby unavoidably made to sound grotesque in the extreme), the stanza would run thus:

On the salt ocean of my tears for thee
My pillow floats: could I my darling {see
Weed never groweth in this billowy sea. {sea-

The poetess means to tell us that she is debarred from communication with her lover.

Were this paper addressed to any other persons than the Members of the Asiatic Society of Japan, most of whom probably possess some knowledge of the literature of this country, it would perhaps, *à propos* of the above lines, which cannot but excite derision when rendered into so utterly alien a tongue as English, be well to remind them that our canons of taste are not necessarily canons of universal application, and, in particular, that there is nothing in the nature of things constraining us to associate plays upon words with the ridiculous. Each literature must be a law unto itself, and I should be surprised if any of those who have devoted themselves to the study of the productions of the Japanese Muse were not to give their unqualified assent to the opinion that the plays upon words, of which all the later poetry is full, add infinitely to its grace, its vigour and its terseness. The lyrical portions of the *Nō*, or classical opera, are particularly rich in this species of adornment,—the sentence, which passes before one like a series of dissolving views, being often broken up in so complicated a manner as to defy any attempt at a logical interpretation. But, after all, delight, not instruction, is the end and aim of all true poetry, and the poet has amply fulfilled his mission if he leaves our minds dazzled with the resources of his art, and our ears ringing with the most harmonious cadences.

If I may detain the Society a few moments longer, I would suggest that any person possessing a sufficient acquaintance with any of the kindred Altaic tongues might open out a curious field of enquiry by collecting together information on the question of the existence in their poetical literatures of like peculiarities. The labours of Rémusat and others have demonstrated the similarity, almost amounting to identity, of grammatical structure pervading all the languages of Tartar origin; and it is but natural to suppose that nations speaking similar languages will use those languages in a similar way. In the mean time, some may, perhaps, be tempted to think that the continued use of hundreds of words after they have partially or completely ceased to possess any meaning is specially characteristic of the Japanese cast of mind, conspicuous as it has ever been for its love of precedent and imitation. Into such speculations it would, however, on the present occasion, be beside the purpose to enter; and I would only, in fulfilment of the promise with which this paper commenced,—the setting forth, namely, of immediate practical utility to follow from the considerations with which it has been occupied,—make one more observation, addressing it more especially to those whose profession it is to popularise in this country the sacred books of the West. A careful study of the ancient poetry of Japan, and therefore, of course, of the prosody which determines its outward form, must precede any successful attempt at a translation into Japanese of the most splendid of all poetical literatures,—the Hebrew Psalms. At least, I am assured by some of those natives best qualified to form an opinion on such a subject, that a metrical version in the manner of the longer odes of the *Manyōshū* would alone be satisfactory to Japanese ears. Of the difficulties attending such a translation, and of the necessity which would often occur of sacrificing the letter to the spirit, there can be no doubt. At the same time, patient and persevering study should render the desired end not impossible of attainment.

ASIATIC SOCIETY OF JAPAN.

A General Meeting of this Society was held on Wednesday, the 24th January 1877, in the Society's room, Kai Sei Gakko, Tōkiō, Dr. Syle, Vice-President, in the chair.

The Recording Secretary read the minutes of last meeting, which were approved, and he thereafter announced that at last Council Meeting the following gentlemen were duly elected members of the Society:—Messrs. Hodges, H. B. M. Consulate, Yokohama; J. von Schaeffer, Austrian Legation; and E. Kinch, of the Japanese Agricultural Department. Dr. Murray, Kaga Yashiki, was elected a member of Council in place of the Hon. A. Mori, whose absence from the country prevented his taking an active part in the Society's work. The Library Committee reported some additions to their journals.

The Chairman referred to the reappearance among them after his return from America of Dr. Murray, who was while there the accredited representative of this Society to corresponding Societies, and bore to them its greetings. Dr. Murray, in response said that it had given him great satisfaction to meet, whenever possible, the learned Societies of the United States, and to convey to them the greetings of the Asiatic Society of Japan. He added that he found all greatly interested in matters pertaining to Japan and eager to obtain information regarding its moral and material history and development. At Washington he frequently attended the meetings of the Philosophical Society of which the venerable Professor Henry was the President; in New York he visited the Geographical Society, whose President, Judge Daly, and the principal leading members evinced the deepest interest in the Japanese people. He had the honour, also, of visiting the American Academy of Science, the Franklin Institute, the Society of Civil Engineering, the Society of Mining Engineers of the United States, and the Academy of Fine Arts, at Philadelphia; the Museums of New York, Boston, Cambridge, etc.; from all of which he received, as the representative of this Society, and of the Japanese Department of Education, repeated marks of courtesy and kindness. He conveyed to the Society the hearty congratulations and best wishes for its prosperity of its friends and correspondents in America.

In response to an allusion made by the Chairman, Dr. Murray spoke of a paper on the early study of the Dutch language in Japan by young Mr. Mitsukuri. This paper, he said, was prepared for publication in one of the Japanese journals, but the subject was of such great interest and so peculiarly adapted to the purposes of the Society, that it would be a matter of regret if it could not form a part of its proceedings. He hoped that arrangements might still be made to have this paper read be-

fore the Society. It possessed an additional interest from the fact that the young author was quite recently a student in the Kai Sei Gakko, and was now pursuing his studies in America. He was a descendant of a long line of distinguished scholars, and the ability and literary skill displayed in the paper gave evidence that the line would be continued. The early introduction of the study of English into Japan would doubtless present many analogous difficulties and incidents. Too much honour could not be paid to the early efforts of such men as Fukasawa, Nakamura, and the Mitsukuris, for their brave struggles in overcoming these difficulties. The want of proper dictionaries and other helps made the labour very arduous. It was said that amongst fifty scholars, who in the early days were engaged in studying the language and endeavouring to make translations of books, there was but one Webster's Dictionary, and that they were compelled to utilize the hours of night as well as of day, that each in turn might have the use of it. The history of this introduction of the study of the English language into Japan would make a most interesting paper for the proceedings of this Society.

The Corresponding Secretary was then called upon to read a paper contributed by Mrs. Chaplin-Ayrton on the Japanese New Year Celebrations.

The Chairman, after returning the thanks of the Society to the writer, remarked that the points of resemblance between the New Year amusements of Japan and those of China were numerous, especially in regard to what one might call symbol-puns, that is, plays upon words such as *lòk*. This word meant *enjoyment*, *hilarity*, and at a marriage feast the idea was called up by the picture of a stag (*lòk* which symbolized *vigour*), and also by green tea, *lòk chu*, (the green representing *freshness*). On similar occasions a dish of ground nuts was placed on the table to symbolize longevity, their name, *tsang-sung*, meaning also continuous growth or long-life. Another prevalent custom of the Chinese New Year was for a company of the employés of a house of business to furnish themselves with a clarinet, a drum, a gong, castanets, and a trombone, and with these to make night, as well as day, hideous by reason of the din they kept up to the disturbance of the whole neighbourhood: this noisy operation was supposed to induce good-luck.

Mr. Chamberlain was now called upon to read his paper "On the use of 'Pillow-Words' and 'Plays upon Words' in Japanese poetry."

The Chairman, after returning the thanks of the Society to Mr. Chamberlain for his very interesting and erudite paper, apologized for recurring to China as the source of his illustrations; but as that was the field with which he was best acquainted, he hoped the Society would excuse his doing so. The stiffness and artificiality of Chinese poetry resulted in a great degree from their laws of rhythm which required certain sequences of *tones*, not *accent*. The almost universal metre was of eight syllables to each line, with a uniform caesural pause after

the fourth, producing a dreary monotony. There was also a metre of five syllables and another of seven, but the latter was seldom heard except in the doggerel lines composed or improvised by comic singers. Nearly thirty years ago, the Chairman said, he had gone into the subject in association with the late Rev. Dr. Medhurst, for the purpose of seeing whether the Chinese existing metres and laws of versification could be made available for psalmody; but the conclusion was that little advantage, but rather, on the contrary, much embarrassment would result from attempting to follow them.

In reply to some questions from Professors Grigsby and Smith, Mr. Chamberlain stated that the line dividing "Pillow-Words" of the first class from simple adjectives or similes, though, doubtless, sometimes a fine one, was yet in almost all cases one which a little consideration would render apparent. For instance, the "Pillow-Word" *nakukonasu*, which had been taken as an illustration, though suffering no phonetic decay, and though still applied to the expression it originally served to embellish, did certainly contain the slight element of obscurity necessary to constitute a "Pillow-Word." This was to be found in the syllables *nasu*, which generally signify "to do" or "to make," but which are here equivalent to *gotoku* (like), a fact which could not be known without enquiry, for many might at first sight be tempted to think that the word "*gotoku*" was simply suppressed after "*nasu*."

This same element of obscurity prevented the "Pillow-Words" from corresponding, as Professor Grigsby had suggested, to the Homeric epithets.

Mr. Chamberlain was unable to give the date of the first use of the term "Pillow-Word," or of the earliest treatise explanatory of their nature; but he informed the Society that the "Pillow-Words" themselves (whether already so termed or not) had been in use ever since the remotest ages of Japanese literature. The earliest thirty-one syllable ode, attributed to the god Suga-no-Mikoto, commences with the "Pillow-Word" *yakumotatsu*.

Prof. Grigsby having enquired whether the ingenious and complicated explanations given by the commentators might not often be mere inventions of these same commentators, who attributed to the "Pillow-Words" more than they originally meant, Mr. Chamberlain replied that this might be the case with some few, but only with a few; and he then proceeded to quote and explain some of these expressions, where, however far-fetched the interpretation might appear, there could be no doubt of its correctness. The way in which the true original of many "Pillow-Words" was arrived at was by a reference to the *Jindaiki* and *Nihonki*, where they might be seen in a more primitive shape or in a more natural connection.

Mr. Chamberlain also incidentally drew attention to the striking contrast existing between the earlier and the later poems of the classic age. In the *Manyōshū* we seemed to breathe an altogether freer air,

and to be nearer Europe than in any of the poems composed since the 8th century. In conclusion he begged to be excused if any of his explanations had seemed vague, for the subject was one of which vagueness formed more or less the essence and the charm.

In answer to Dr. Murray, who asked whether euphony might not be the determining cause of the use of "Pillow-Words," Mr. Chamberlain said this might to a certain extent be so, and that he had pointed to this in his paper by considering "Pillow-Words" and "Plays upon Words" as occupying in Japanese poetry the place of rhyme and other Western poetical ornaments. It would, however, in the mellifluous classical language of Japan, be hard to find one word which was less euphonious than another. In that tongue, so different from the semi-Chinese jargon of the present day, every syllable was a delight to listen to.

D. H. MARSHALL,
Recording Secretary.

ASIATIC SOCIETY OF JAPAN.

The usual monthly meeting of the Society was held on Wednesday, the 14th February, at the Grand Hotel, Yokohama, with Sir Harry Parkes, the President, in the Chair.

The minutes of the previous meeting held in Tôkiô on the 24th January, which were published in the *Japan Mail* of the 3rd February, were, upon motion duly made and seconded, taken as read. Mr. House gave notice of his intention to bring before the next meeting the question of admitting public reporters. At the last meeting in Yokohama two gentlemen attended from two of the local papers, but were informed that the practice of the Society did not permit their presence as reporters, though with all possible courtesy they were invited to remain as visitors. He considered that the Society could only gain by having its meetings more widely reported, and he would take the steps provided in the by-laws to recommend at the first opportunity the admission of reporters.

On the invitation of the President Mr. House stated that the paper he had sent in to the Society on "The Early Study of Dutch in Japan" was the production of a young Japanese student of about eighteen years of age, who had been a pupil of his own, and who was now studying in the United States. The author, Mr. K. Mitsukuri, was one of a family that had made itself a name in Japanese literary circles. The father was eminent in Dutch learning, an elder brother after matriculating with honours at the London University had taken a good place at Cambridge, and a cousin bearing the same name was one of the most distinguished of the French translators. In spite of the extreme youth of the author he felt that the paper was one he could confidently recommend to the notice of the Society.

Mr. Mitsukuri's paper on "The early study of Dutch in Japan" was then read by the Recording Secretary.

On its conclusion the President inquired whether the composition of the paper was entirely Mr. Mitsukuri's own work, and Mr. House assured the meeting that it was *verbatim et literatim* as he had received it from Mr. Mitsukuri. He had been requested to make some additions to it, notably to insert, in the list of scholars mentioned, the name of the author's father, but he had persistently refused to make any change whatever, in order that it might be published exactly as it left the hands of the youthful author.

The President remarked that Mr. House's explanation added materially to the interest of the paper, as apart from the valuable information it supplied, and the graphic picture which it drew of the Japan of olden days, the excellent English in which it was written proved the capacity of the Japanese student to obtain a complete mastery of a foreign language. This mastery, he believed, had been so seldom acquired, that some doubts were entertained as to the ability of the Japanese

for linguistic studies. The paper showed, however, that if the Japanese did not usually advance in the acquisition of modern languages beyond a certain point, the circumstance was not attributable to any want of capacity, but to other causes.

Mr. House was of opinion that it might be in some degree attributed to the fact, that the studies of the Japanese pupils at the present time were directed more to special subjects, on which information was to be gained through the medium of a foreign language, than to the accurate acquirement of the language itself. They were thus satisfied with such a modicum of knowledge as enabled them to gather the sense of a book, or to understand the gist of a Professor's lecture, but that few, if any, cultivated the art of expressing themselves appropriately either on paper or by word of mouth.

Mr. J. C. Hall remarked that the original work, *Rangaku Koto-hajime*, of which the paper just read was a rapid epitome, was in two thin volumes written in a simple style, printed in exceedingly clear type, and for these reasons was the first book to which his teachers directed his attention on his commencing the study of Japanese. The dates mentioned exactly corresponded with those given in Mr. Satow's paper on "Pure Shintô", as the periods at which special attention was directed to foreign productions and foreign learning. He thought, however, that the author was in error in his remarks on the extraordinary ignorance displayed by the Japanese interpreters attached to the Dutch factory at Desima.

After some conversation on that subject the President observed that the writer's information must have been at fault on that point, as we had the evidence of the early Dutch writers themselves on this subject, and knew that all the valuable information relative to Japan with which they had supplied the world had been obtained through the medium of the Nagasaki interpreters, who must consequently have possessed a considerable knowledge of Dutch. Kämpfer, who visited Japan in 1690, expressly mentions that he obtained all his information through Japanese interpretation. Probably, however, the Shôgun's Government endeavoured to keep to themselves all the information obtained from time to time through the Dutch, and were not willing to allow the benefit of such knowledge to be shared by other than their own officers.

In conclusion the President begged Mr. House to convey to Mr. Mitsukuri the thanks of the Society for the paper and to share himself in those thanks for having so kindly placed the paper at the disposal of the Society. He trusted that other Japanese students of the stamp of Mr. Mitsukuri would favour the Society with similar papers, which he needed not to say would be most welcome, as the Society cordially desired to invite Japanese co-operation whether in the form of membership or of literary contributions.

The meeting then separated.

ASIATIC SOCIETY OF JAPAN.

A General Meeting of this Society was held on Wednesday, the 28th February, 1877, in the Society's room, Kai Sei Gakko, Tōkiō, Sir Harry S. Parkes, the President, in the Chair. After the usual reading of the minutes the Recording Secretary announced that at the previous Council Meeting the following gentlemen were duly elected members of the Society:—Professor Josiah Conder of the Imperial College of Engineering, Mr. W. D. Cox of the Japanese Agricultural Department, Mr. G. C. Pearson of Yokohama, and Mr. B. W. Dwars of Osaka.

The Corresponding Secretary read a letter from the German Asiatic Society to the effect that, owing to a change in its constitution, it was now in a position to return the invitation given by this Society to its members. The German Asiatic Society therefore now cordially invited the members of this Society to attend its ordinary meetings. The Library Committee reported the receipt of several useful periodicals, as well as some Japanese flint arrow-heads, which were presented to the Museum by Herr von Siebold.

The President now called on Mr. Longford to read his paper on "A summary of the Japanese Penal Code."

Mr. Longford said that owing to the length of his paper he should be necessitated to select such portions as he thought would best give the Society an idea of the nature of the summary.

The President invited discussion on the paper. He regretted that time did not permit Mr. Longford to read more of it, as he had only been able to give the meeting his analysis of three of the thirteen chapters into which the two codes are divided. These portions, however, sufficiently attested the interest attaching to the subject and the labour which Mr. Longford had devoted to it.

Professor Grigsby, who was lately engaged in the same work as Mr. Longford and knew well the labour it entailed, thought that the Society was much indebted to Mr. Longford, and, after asking information on some points, he interested the meeting by reading literal translations of some of the laws in the codes referred to.

Mr. J. C. Hall thought that a contrast of the Japanese penal code with the criminal law of England, or any of the western nations, was not so instructive as a comparison that might be drawn between it and some of the archaic codes known to us, say that of the Anglo-Saxons, in which many of the same peculiarities, the recognition of social and official

ranks, the money commutations and assessments varying according to the circumstances of the case and the rank of the offender, the penal enforcement of moral duties, and the consideration shown to the authority of the heads of families, were nearly as prominent as in the Japanese code. Many of the enactments mentioned in the summary just read, and by the preceding speaker, struck us with a sense of the ludicrous, but in reality there was nothing absurd in them whatever; they were well adapted to the stage of social development of the people for whom they were made. It would be a profound mistake to imagine that in point of social development the Japanese were on a level with the nations of the West. In this country the family is still the political unit, not the individual; and the comminution of the social groups has proceeded but a small way. In many villages the descent of all the inhabitants from a common ancestor is still a living tradition, and up till the recent sweeping decree by which the tenure of land throughout the Empire was altered, the institution of ownership and tillage in common, with the shifting of severalties and all its other incidents, so ingeniously traced among the primitive Aryan communities by the researches of Sir Henry Maine, was conspicuous and open to observation. How compact was the family organization, how great the authority of the head of the household would be seen by a reference to the division of the code headed *ko-kon ritsu*, or domestic law. What were the original customs of the Japanese people, and how far they differed from those of China would be a question exceedingly difficult to determine; but it is certain that in form and substance the Japanese penal code was a transcript of that of China. It would, however, be a mistake to suppose that the introduction of this body of penal law into this country was of so late a date as the Ming period. No doubt, both the Ming and the Tsing codes were, as had been stated, largely made use of by the commission of learned and able men who drew up the first of the two existing codes; but so early as the eighth century the bulk of the same set of rules had been adopted from the code of the Tang dynasty, to which in form and arrangement the existing Japanese code was most closely allied.

Professor W. E. Ayrton asked for information on some points, and said that, as regards the whipping in court to which Mr. Longford had referred, no better evidence of its existence could be adduced than the prominent position which he had observed was given to the cat-of-nine tails at every petty magistrate's table. At the same time he thought from remarks made to him by the court officials that they were fully alive to the degradation accompanying the extraction of evidence by torture, but that they considered, and in this Mr. Ayrton agreed with them, that in a country like Japan, where perjury had not been made a most serious crime, it would be very difficult to carry on justice if this fear of torture were to be suddenly removed. He had observed on visiting the convict settlement at Tsukuda-jima (a small island at the mouth of the Ogawa) the appearance of happiness and freedom possessed

by the prisoners. This island, which was formerly used by the Shōgun as a place of security in which to seclude those whom he deemed troublesome, had, under the new code of laws, been turned into an exact copy of the English convict settlements. Here each man worked at his own trade, and in addition to receiving, on his leaving the prison, a portion of the money so earned, was allowed, unless sentenced for life, to go out to work for hire in the city of Tōkiō. The work-yards at Tsukuda-jima were very slightly palisaded, and this, combined with the small distance from the mainland, made escaping apparently very easy. The restraint was, however, a moral one, for a convict re-caught after a second attempt to escape was punished by death. A great contrast to Tsukuda-jima was the central jail "Shu-goku." Here were observed prisoners awaiting trial for months, and sometimes, as in the case of political offenders, for years, crowded together in strong wooden barred cages, and allowed no exercise except in a passage just outside their cages. The desirability of some sort of Habeas Corpus Act, the existence of which had, he believed, not been referred to by Mr. Longford, was here rendered apparent. At the same time a Government like the Japanese having, of course, in the administration of justice, to deal with difficulties quite unknown to foreigners, could hardly be expected to have a system more free than that possessed by some European countries. The office of executioner, Mr. Ayrton was also told, was hereditary and the test of this functionary's skill, if doubt existed, was his ability to cut a dead body in two with one blow across the loins. Also that no prisoner was executed until he had first confessed his crime, and unless he were sufficiently spirited to support himself unassisted while his head was being cut off.

Mr. Longford stated in reply to Professor Ayrton, that not only was no barrister allowed to assist a criminal at his trial, but no person whatsoever was allowed to be present in court, except the jailer in whose charge the prisoner was and a witness, while actually giving his evidence. The trial always commenced with an examination of the prisoner himself, and, if this examination resulted in the extortion of an admission of guilt from him, he might be condemned, but if it did not, witnesses were called and examined, and, if the evidence adduced by them were sufficient to establish the fact of the prisoner's guilt, he might then be condemned in despite of any assertions of innocence on his part. Formerly of course his sealed confession was absolutely necessary, but during the course of last year the law which made it so was annulled. The officer by whom the examination was conducted was not, as Mr. Ayrton supposed, a judge, but an inquisitor, whose only duty was to ascertain the whole facts of the case either from the prisoner or the witnesses, and having done so, to embody them in a clear concise statement of the case which he laid before the judge. The latter then pronounced the verdict and sentence on the strength of this statement, without, as a rule, himself ever having seen the prisoner at all. In the trial of civil cases, on the other hand, Japanese courts were as open as English, and the parties were

not only allowed the assistance of barristers, but their appearance without such was strongly discouraged by the judicial officials. As to Professor Ayrton's remarks on the convict depôt at Tsukuda-jima, he could endorse from personal observation all that that gentleman had said as to the clean, healthy, and well-cared-for appearance that the convicts presented, and the admirable system of management by which their labour was utilized to the benefit doth of the Government and the convicts themselves. The other prison described by Professor Ayrton he had also visited, and had found it to be much as that gentleman described, but it was only used for criminals awaiting trial, and though instances had no doubt occurred in which they had been detained for a long time, they were very isolated. With regard to the remarks made by Professor Grigsby, he had only to point out an error which that gentleman had committed in stating that no discretionary power was vested in the Japanese judges, in the matter of the amount of punishment to be inflicted on criminals brought before them. Professor Grigsby based this remark upon his knowledge of the two penal codes, neither of which, it was quite true, contained any provision which a discretionary power of this kind was given to the judges. The punishment to be inflicted for every offence is distinctly stated in the law applicable to it, and a judge was, until recently, bound to sentence a criminal to the punishment thus provided for any offence of which he might be convicted, no matter how extenuating might have been the attendant circumstances. However, by a Government notification issued in the latter part of the year 1874, the power was conferred on the judges of making certain mitigations in the statute punishments, whenever on due consideration it appeared to them that the crime had been committed under circumstances which made the offender deserving of clemency, such, for example, as those of temptation or provocation, and this power is now very freely made use of. A very glaring instance of the injustice that might arise from the want of such a power was afforded shortly before the issue of that notification, by the sentence passed on a Chinaman in the employment of a foreign firm at Yokohama, who in a moment of ill temper kicked a Japanese coolie and unintentionally caused his death. For doing so he was properly convicted of the offence styled "killing in an affray," which includes all cases where death is caused by a blow deliberately given, whether in an affray or otherwise, but without any intention of causing death, and sentenced to the penalty provided for it in the codes—namely, penal servitude for life. This punishment was out of all proportion to the gravity of the offence, but it was perfectly legal, and no remission or mitigation could therefore be made in it. The notification was, however, issued shortly afterwards, and the recurrence of a like injustice thus prevented for the future.

The President remarked that no one who was acquainted with the state of law in Japan prior to the establishment of the Mikado's Government,

could fail to see that the advance made by that Government in criminal legislation was very great, and was highly creditable to them. The existing codes were doubtless based upon the Chinese law, but they contained considerable improvements upon that law, and were much more merciful and humane. Many of the principles of Chinese law were still retained, and the endeavour made to attach a fixed punishment to every conceivable offence, or to every degree of crime was the cause of an amount of rigidity both in the Japanese law and in the practice founded on it, which was not in consonance with our ideas. But he was not prepared to say that this code, as it went, was unsuited to the Japanese people in their present condition, and in endeavouring to improve the laws the Government had not to engage in abstract law-making, but had to consider what would best meet the state and wants of the people. Improvements in law-making must be gradual in order to be durable, and it would seldom answer for one nation to copy off-hand the codes of other nations who were differently situated. That, as far as he understood, had not been done in the codes which were now being discussed. The domestic law, although differing widely from our own system, as previous speakers had pointed out, was probably one of the branches of the existing Japanese code which could not be lightly abandoned. The administration of the law which had been treated of in the section on Imprisonment and Judgment offered another wide field for consideration, and showed that an efficient judicial system did not rest only upon the laws themselves, but also on the manner in which the laws were applied. It was evident that the Japanese criminal judges discharged their functions in a very different way from those of our own courts; the mode in which testimony was taken, and the exclusion of the public from the court was entirely opposed to our practice, and so also was the singular method of not leaving the decision of the case to the judicial officer who conducted the trial, but to another judge or functionary at a distance, apparently of higher rank, who had to decide upon the statement or summary of the evidence drawn up by the examining officer, and not upon the evidence itself. The latter would naturally endeavour to furnish his superior with a clear connected story, which would not, of course, be evidence at all according to our ideas. As Mr. Longford had pointed out, the functions of the officer conducting the trial appeared to be rather those of an inquisitor than a judge, as far at least as we understand the duties of a judge. The mode of taking testimony was another very important subject, and the fact that torture had not yet been entirely eliminated from Japanese procedure, pointed to the difficulties which surround that subject. He thought the Society would not be able to do justice to Mr. Longford's paper, on the important topic of which it treated, until it had been fully read, or, as he would suggest, until it had been printed and was in the hands of members. After this had

been done, the discussion could be continued at another meeting, if the Society so desired.

The Meeting approved of this suggestion, and the proceedings terminated.

ASIATIC SOCIETY OF JAPAN.

A regular meeting was held at the Grand Hotel, on Wednesday the 14th instant, Sir Harry S. Parkes, the President of the Society, in the chair.

The minutes of the previous meeting held at Tôkiô on the 28th February having been, upon motion duly made and seconded, taken as read, the Secretary announced that he had received from Dr. Geerts two copies of his pamphlet on "The Mineral Waters of Japan." Dr. Stuart Eldridge then read his paper "Notes on the Crania of the Bootans of Formosa," illustrating it with specimens and also with a series of diagrams on a screen, by aid of a large magic lantern.

The President remarks that Dr. Eldridge's paper possessed peculiar interest on account of the novelty of the subject, which related not only to the Bootans but to all the aborigines of Formosa. Of these there are two divisions—those who have been brought under the influence of Chinese civilization, and those who are still in a savage condition. The Bootans form one of a cluster of eighteen small tribes—if tribes they should be called—belonging to the latter division and occupying the extreme south of Formosa. Craniology will be of material assistance in determining from whence the Formosan aborigines came, and Dr. Eldridge, he believed, was the first contributor of evidence of that nature. Language was of course another guide, and the researches yet made into the dialects of the Formosan aborigines revealed an intimate connection with the Malayan language. The civilized aborigines are fast losing their own language and are replacing it by Chinese. Enquiry into the savage tribes is in its infancy, but Mr. Bullock and Mr. Steere agree in tracing a distinct affinity to the Malay, while Mr. Thomson believes that they not only resemble the Malay but also the languages of the Phillipines, New Guinea, and New Zealand. There is a considerable difference in the dialects of the uncivilized aborigines, but Mr. Steere remarks that they all observe the same practices of tattooing some part of their body and of cutting off and preserving the heads of their enemies.

The President felt that the Society was much obliged to Dr. Eldridge for his paper, and he hoped that he would accept the thanks of the meeting for the trouble he had taken to explain the subject by means of his interesting diagrams.

The meeting then separated.

JAPANESE FISHERIES.

BY

GEO. ELLIOTT GREGORY, Esq.

*Read before the Asiatic Society of Japan, on the
28th March 1877.*

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PART I.

A thorough consideration of the subject of the fisheries of this country, even in its more important bearings alone would, of course, assume far larger proportions than it would be possible to bring to the notice of the Society in the form of a paper. I shall, therefore, only lay before you brief descriptions of such of the principal modes of taking fish as will serve for types of the rest, accompanied by such other facts as I have been able to glean, and so give, if possible, a general idea of this industry in Japan, employing as it does an army of fishers and supplying to the nation the article of food second only in importance.

Many of the implements used in fishing in fresh water differing materially from those with which fish are taken in the sea, I shall group each separately, and for convenience of reference I will first present them, under the heads A. and B., in the tabular form appended, embodying particulars as to the kinds of fish taken, baits, localities and seasons. Commencing then with the fisheries in lakes, rivers and preserves, I have chosen for description five of the different kinds of tackle used in fresh water angling as those shewing the principal variations of form and use. The first of these, the *koi-tsuru-sao*, (table A. I.) is a rod of bamboo divided into five pieces or joints which fit one into another. The socket ends of these are bound with silk to prevent splitting, and both ends are lacquered. Of the joints the first is about five feet long and from one inch to one inch and a half

in diameter; the third about four feet, and the fourth and fifth each about three feet six inches, all diminishing proportionately in diameter and making a total length of about twenty-one feet. When the rod is not in use three of the joints are contained in the other two.

The line is made of silk, dyed a dark red brown, with a dye called *kakishibu*,—from *kaki*, the persimmon, and *shibu*, the sap or juice of trees or fruits—and is passed through a horse-hair loop at the tip of the rod and attached about five feet further down. The float is large and round, and above it are placed ten or fifteen small pieces of wood which may be slid along the line and serve to keep it from sinking. The hook is attached to the line by about one foot of horse-hair.

The rod being too heavy to be held by hand, is supported upon a forked stick driven into the ground. The fish is played and landed with a net.

If the *koi zao* should appear of unwieldy length, as a set off we have the *haze zao* (table A. IV) a rod, likewise of bamboo, of a total length of about three feet six inches only. It is divided into three pieces fitting one into the other, of which the first is about ten inches long and three-quarters of an inch in diameter at the thicker end; the second about sixteen inches in length and much thinner; and the third a mere twig. The line is attached to the rod either by a cogged brass reel set into the first joint or by a cleat fixed on to the outside, which, running up the centre, issues at the tip through a metal ferrule.

The hook is attached to the line by a gut about three feet long and is sunk by a small spherical leaden sink. No float is used.

The *ka-bari** (table A. X) is a simple bamboo rod.

* I am told that European flies do not succeed in Japanese rivers, and have heard, as a reason, assigned by a gentleman, himself an angler, that the feathers of which the wings are made, being too soft and pliant to resist the pressure of the rapid streams of this country, collapse and thus cause the artificial fly to lose all similitude to the real insect. This would seem to be the case; inasmuch as the wings of the Japanese flies are made of bristles and give to them, when out of the water, a very rough and rigid appearance as compared with that presented by flies of European make.

The line is used with a float but without any sink and the bait, as its name *ka* implies, is an artificial fly.

The next, *nagashi-bari* (table A. XI), is a piece of common string about four feet in length, furnished at one end with a small, barbless brass hook and attached by the other to a very pliant bamboo switch, which is stuck into the mud at the bottom of a stream near the bank. The bait is a small live fish into which the hook is inserted near the tail in such a manner that the point shall protrude from the back and be fully exposed. The bait is thus at liberty to swim about until taken. Were the rod or switch not very pliant, the fish when caught would break the line in its endeavours to escape.

The last which it will be necessary to describe is the *dzudzugo* (table A. IX.), a rod and line used without float, sink or hook. The bait, consisting of a large bunch of worms attached to the end of the line, is allowed to sink until the fish (eels) have fastened themselves to it. These are then drawn gently to the surface of the water and landed with a net.

The *te-dzuri*, or hand line (table B.), is the same as those of Europe, except that it is always used from boats. When more than one are put out from the same boat, small pieces of whale-bone bent at right angles about three inches from the tip, and bearing tiny brass bells are stuck into the gunwale of the boat. The line is passed over these in notches and the bells ring when the fish bite.

The *nawa*, or simple line (table C.), is a hempen line varying in length up to about one thousand feet. At distances of six feet along its whole length are attached other lines about three feet long furnished with hooks.

We now come to nets, descriptions of six of which will, I think, cover all the different kinds that have yet come under my observation. That which is most commonly to be seen is the *uchi* or *to ami*, or casting net (table D. I). It is a circular piece of silk net-work, varying in diameter; around the circumference are attached pieces of lead to cause it to spread out flat when cast and to sink

rapidly. From its centre springs a thin cord by which it is withdrawn from the water. The manner of casting this net is as follows:—The line being fastened round the left wrist of the fisherman by a noose at its end, is with a part of the net, as it hangs from its centre, laid in folds across the palm of the open left hand; upon these folds the remaining portion to within about three feet of the leads is hung in loops, and the whole then grasped loosely. A part of the edge of the net is then opened out and hung behind over the left elbow and being continued forward under the arm, is taken in the right hand. What still remains is divided as it hangs from the left hand into five equal folds, four of which are held, one between each of the fingers of the right hand. The fisherman now turns his back in the direction in which he wishes to cast the net; throws it away over his right shoulder, at the same time turning himself half round and allowing the folds to escape freely from his left hand. The net falls flat upon the water, and, sinking rapidly, encloses any fish which may happen to be beneath it. It is then carefully drawn towards the fisherman until the further part of the circumference has met the nearer part, and the fish are entangled in the meshes when it is raised. Ground bait of balls of boiled wheat is used with this net.

The next is the *yotsu-de ami* (table D. II). This net is square, and is stretched by its four corners from the ends of two light poles bent in the form of a bow crossed at right angles, and fastened together at their centres; this cross of four arms or *yotsu te* is then attached by its centre to the end of another and stouter pole, which is itself again balanced upon a short upright post fixed either upon the side of a boat or driven into the ground. The net is lowered into the water, and after having remained a short time beneath the surface is quickly raised, if a large net, by means of pulleys attached to the inner end of the balancing pole, if a small one, by hand, and whatever fish may have been passing over it are taken. When used at night, bamboo torches are burnt to allure the fish.

The *kake ami* (table D. III) is a strip of netting of which the length and breadth vary according to the water in which it is used. One side of this strip is furnished, at distances of about two inches along its entire length, with small pieces of wood sufficient together to sustain its weight in the water. The opposite side is in like manner furnished with small earthenware sinks which cause the whole net with its floats to descend to the bottom, where it remains in an upright position. It is then stretched from the opposite banks of a river, when the fish swimming up or down run their heads into its meshes, and passing beyond the gills or pectoral fins can neither advance nor recede.

The *sukui ami* (table D. IV) is formed thus: Two bamboos about ten feet in length being crossed and fastened within a few inches of their butts so as to form the letter V, a silken net of corresponding form and of which the sides are respectively about six feet and three feet in length is spread between them, and attached to them by means of loops slipped over their tips and slid along. The dip of the net in the centre is about two feet.

This net is used either from boats or by a man wading; it is plunged into the water and taken out again with a scooping action, whence its name *sukui*.

We next come to the *oshi ami* (table D. VII), in form a cylinder of netting about ten feet high by about the same in circumference. Within it are placed three bamboos suited in length to the depth of the water; the upper ends of these are bound together and their lower ends are made fast to the inside of the base of the net at three equi-distant points. The upper end of the net is drawn loosely together in folds around the bamboos, immediately below where they cross each other, and its base is extended in the form of a triangle so that the whole becomes a hollow pyramid of net. When the rising of air-bubbles to the surface of the water shews that fish are moving among the weeds at the bottom, the fishermen place the net over the spot and, pushing it gently down, enclose them; the folds at the top are then loosened so as to allow the fish in

their struggles to escape to draw the net down and entangle themselves in its meshes, which being done, the bamboos are closed and the whole withdrawn.

The *masu ami* (table D. VIII.) is a net in the form of a bag about sixteen feet in circumference by about twenty-five feet in depth. Almost one half of the circumference is floated by means of pieces of wood, and the remainder is caused to sink by weights. To each side of the mouth of the net is attached a thin bamboo by which it is dragged by fishermen in two boats, which are rowed up the stream parallel with each other and stern first. This net is used in very shallow streams and the fish are taken as they go down to the sea.

We now comes to Weirs, called by the Japanese *yana*; of these there are two kinds, the one solid and the other formed of netting. The former, or *yana* proper (table F. I.) is, thus constructed: In the centre of a river is built a wall from twelve feet to fifteen feet broad, and from each of the ends of this wall to the two opposite banks a close bamboo fence is erected. From the lower side of the wall, about two feet beneath the top, a bamboo platform about twenty-four feet in length extends down the stream. The water rises at the wall and rushes over with great rapidity. Fish going down to the sea are stopped by the fence, and getting into the stream in the centre are carried over the wall and left dry upon the platform, from which they are quickly removed by persons who watch from a hut on the bank.

The latter, *yana ami* (table F. II and III) are nets which are substituted for the wall and platform. There are two kinds of these nets marked in the table (a and b). They are stretched across the stream at places where it is very narrow. The fish going down the river, are of course stopped; and with one kind are caught as they hover around, in a net much the same as the *yotsu de ami*; whilst with the other kind they are allowed to fix themselves in the meshes of the net itself, as in the *kake ami*, and are taken by men who dive for them.

These divers thrust a piece of bamboo through the eyes to render their removal more easy.

The traps or baskets in use among the Japanese fishers are many and ingenious; the following are some of the principal ones.

The *yeri* (table E.) is a kind of maze constructed of bamboo poles driven into the ground at the bottom of lakes and preserves. The fish enter, pass on, and finally losing themselves, find escape impossible. They thus remain swimming around in the smaller compartments until they are removed with hand nets.

The *tsuke-shiba* (table G. VI.) is a trap formed of seven or eight poles driven into the bottom in a circle, the interior space filled up with branches; the fish enter these and are removed with them.

Taka tsutsu (table G. VII.) is an eel-trap, consisting of three pieces of bamboo about two inches in diameter and from three feet to four feet long. The joints having been cut out so as to allow a free passage from end to end, the tubes are laid lengthwise, two side by side, and the third upon them, bound together and suspended in the water by a cord. The fish take shelter in them and are withdrawn quietly before they are able to escape.

The *koi do* (table G. II.) is an oval bamboo cage or basket. At one end is a semi-circular opening by which the fish enter; this is furnished with a row of bamboo spikes bound together with thread and directed inwards; their points fall to the bottom of the cage, allowing the fish to lift them readily from without but rendering escape from within impossible. The bait composed of small balls is deposited upon mud at the bottom of the trap, and is thus prevented from being washed away by the stream.

The *namadzu do* (table G. IV) is a slightly conical bamboo basket about ten feet in length by two feet in diameter at its larger end. It is covered with coarse mats made of rice straw, and being loosely fitted with dried branches and twigs, is sunk to the bottom of the

water during the winter months, when the fish take refuge in it.

Two kinds of spears have come under my notice. One, the *yasu* (table K.), is a fork, the prongs of which are six in number, barbed at the points on one side, about six inches in length and two inches apart. It is fixed to a bamboo pole, the length of which varies according as it is used from a boat or by a man wading. It is thrust rapidly and continuously to the bottom until it transfixes a fish. With it are taken flat-fish at the mouths of rivers.

The other, the *unagi kaki* (table J.), is used for taking eels and is thus formed: To the end of a pole is fixed a piece of iron, like the haft of a harpoon, about eighteen inches long; this is tipped with steel flattened and sharpened; its end is bent back and brought forward again so as to form a hook at right angles to the shaft; this hook is about one and a half inches long by one inch in breadth, and into the inner side of its bend are welded one or two sharp spikes of the same length. This spear is used either from a boat or by a man wading; when the former, the gunwale of the boat forms a fulcrum, and when the latter, the fisherman's foot serves this purpose. The hook is plunged into the mud at the bottom of the water, carried a short distance forward and raised. If it meets with an eel, the fish is immediately transfixed on one of the spikes and shaken off into the boat before it has time to wriggle itself free.

Besides these, there are dredges for taking shell-fish. These I shall not describe here as they are especially in use in salt water, and will therefore more properly be classed among the implements used in sea fishing.

There is still another way of taking fish, viz; *U tsukau* or fishing with the cormorant; this I have not yet had an opportunity of witnessing myself, but I am able to lay before you a translation which I made some years ago from a German translation of a Japanese account handed to me by Mr. Machida.

CATCHING FISH WITH CORMORANTS.

On the island of Susashima, situated in Owari, to the south of Morasaki, are numerous inlets and small rivers which, during the winter, abound with different kinds of small fish. These places are frequented by cormorants which prey upon the fish. From ancient times people have lived on the island and made it their business to catch these birds. This they do by placing wooden images of the birds in spots frequented by them and covering the surrounding branches and twigs with bird-lime, on settling upon which they stick fast. After having in this manner caught one cormorant, they place it among the bushes, instead of the image, and thus catch more. The birds so caught are conveyed to Owari.

USE OF THE CORMORANT.

These birds are now sold to people employed in fishing with cormorants. Large, young birds are the most valuable, as old ones fish slowly, are quickly fatigued and soon become ill and useless. For ten days after their purchase they are kept in such a manner as to make them as quickly as possible accustomed to people. Near the Nagara river are seven houses, the occupants of which are employed in fishing with cormorants. In each of these houses are kept, on an average, sixteen birds. From the 1st of the 4th month until the end of the 8th month fishing in the river Nagara is carried on every night. The fishermen go out in long boats which at their bows are furnished with fire baskets or cressets. The fish having been attracted by the light from the fires in these, the birds are sent into the water.

The cormorant, after having caught a fish, is drawn into the boat, and, the fish being taken from it, is sent into the water again. Large *ayu* fish weigh as much as three quarters of a pound and the cormorant often swallows five or six fish of this weight. Thus in an hour's time one boat often takes two hundred fish. Very much, however, depends upon the skill of the fisherman, the tying

up of the necks and bodies of the birds so that they be neither too tight nor too loose, and upon the care taken in giving the birds the proper quantity of food.

TRAINING THE CORMORANTS.

From the commencement of the 9th month (Oct. 3rd) until the commencement of the 4th month (May 7th) of the following years the birds are fattened. As above mentioned the houses in which cormorants are kept amount to seven, possessing a total of about one hundred and twelve birds. These are trained in the following manner. All the one hundred and twelve birds are sent off together on the river Nagara; the fishermen encouraging them to fish by uttering cries of *Aika! Aika!* The birds dive and catch and eat fish of all sizes, (at this time their necks and bodies are not tied up), after having eaten enough they are driven together by help of the boats, none ever escaping. Each of the owners then picks out his own birds from the flock, recognizing them by their heads, and takes them into his boat. Should it happen that a bird strays, the fisherman recalls it by crying *Ko, ko, ko!* at the same time holding up a fish which he gives to it on its return. The birds are fed but once a day and in the manner just described. Trained birds have a cord tied round their necks to prevent them from swallowing the fish entirely, but they are able to swallow small fish notwithstanding. It is not necessary, if they have been out some time, to give them any other food. In the night after having finished fishing in the river, should any of the birds evidently still be hungry they are fed with fish. After this all the birds are taken to their quarters, when it is necessary, however, to tie a piece of cord (made of straw) round their necks to prevent them from vomiting the fish they have taken for food. Every day at about ten o'clock the birds are placed four together in baskets and conveyed to the river to drink.

In summer to protect the birds from the mosquitoes, which would otherwise trouble them very much, their quarters are surrounded by mosquito nets.

MANNER OF PREPARING THE AYU FISH, CAUGHT AT
MINO ON THE RIVER NAGARA, WITH KASU OR
RICE FROM WHICH SAKE OR WINE HAS
BEEN EXTRACTED.

The Ayu fish taken at Mino on the Nagara is an article everywhere greatly esteemed. Those taken in August and September are especially palatable. The fish caught as described above are sorted according to their size, those being considered the best which are from six inches to seven inches long and are very fleshy. After having been sorted they are salted by sprinkling over them good salt. To ten of the larger fish six or seven handfuls of salt are used; they remain thus for about thirty days during which time, however, the salt is changed. The fish are then laid in fresh water which has been filtered through thin silk, and are allowed to remain there for about ten hours, after which they are removed, slightly dried and placed between rice from which *saké* has been expressed.

To the above must be added the following manner of preparing the pressed rice: This residuum must be cleansed from all impurities, slightly wetted with *mirin*, or sweet rice wine, and well kneaded. This preparation is called *saké kasu*. On the bottom of a wooden pail is put a layer of *kasu* about one inch in depth; this is covered with a sheet of paper on which is put another layer of *kasu* from three to four inches deep. On these two layers is placed a third of salted fish and upon that again another layer of *kasu*. Twelve of such layers may be contained in one pail. The pail is made of a light soft wood called Sawara wood, its sides are half an inch in thickness, its diameter is about one foot five inches and its height the same. The lid is made of the same wood and fits exactly.

There is a second mode in which, instead of the residuum, pressed rice and sweet *saké* are used. The fish are prepared in the same manner as in the former. This rice and sweet *saké* are called *koji* and are prepared as follows: Good white rice is washed in clean water and then

TABLE A.—FRESH WATER FISHING.

| | IMPLEMENTS. | | FISH TAKEN. | LOCALITIES. | BAIT. | SEASON. |
|---|---|---------------------|---|---|----------------------------------|------------------------------|
| A | Sao-dzuri 竿釣.....from a sao, rod, and tsuri, to hang with a line | Rods and Lines..... | | | | |
| | I. Koi dzuri zao 鯉釣竿 from Koi, name of fish, and tsuri zao as above | " | Koi 鯉 Cyprinus haematopterus | Rivers of Nippon, Kiushiu and Islands | Sweet potatoes and rice | June and October |
| | II. Seigo zao 鯉竿 .....from Seigo, name of fish, etc. | " | Namadzu 鯉 Silurus Japonicus | do. | Earth-worms | January to November |
| | | " | Seigo 鯉 Perca labrax Jap. | Rivers and preserves in the North | Mud-worms | April to September |
| | III. Bora zao 鱒竿 .....from Bora, name of fish, etc..... | " | Ina 撥尾魚 Mugil Japonicus | East and West of Nippon and Kiushiu | do. | May to July |
| | IV. Haze zao 沙魚竿 .....from Haze, name of fish, etc..... | " | Bora 鱒 Ina full grown | do. | do. | do. |
| | V. Kaidzu zao 海鯽竿 ...from Kaidzu, name of fish, etc..... | " | See II. Haze 沙魚 Gobius virgo | See II. Rivers between Tôkiô and Osaka | See II. Earth and mud worms | See II. June to September |
| | VI. Funa zao 鯽竿 .....from Funa, name of fish, etc..... | " | Kaidzu 海鯽 Seigo 鯉 Perca labrax Jap. | Rivers of Nippon and Yezo | Prawns and small crabs | May and June |
| | VII. Tanago zao 鰕竿 .....from Tanago, name of fish, etc..... | " | Funa 鯽 Carassius langsdorffii | ..... | ..... | ..... |
| | VIII. Yebi zao 海老竿 .....from Yebi, kinds of prawns or crayfish, etc. | " | Dabo haze Tenaga yebi 手長海老 Kind of prawn | Rivers of Nippon and Kiushiu | Earth-worms | March to September |
| | IX. Dzudzugo .....no satisfactory derivation. | " | Tanago 鰕 Capoëta lanceolata | do. | do. | May to July |
| B | X. Kabari 蚊鉤 .....from Ka, mosquito, and hari, hook. | " | Yebi 海老 Name of kinds of prawns and crayfish | Rivers between Tôkiô and Osaka | do. | June to September |
| | XI. Nagashi bari 流鉤 | " | Unagi 鰻 Anguilla Japonica | Rivers of Nippon | do. | May to July |
| | Tedzuri 手釣 .....from Te, hand, and tsuri, to hang with a line..... | Hand lines | do. 鰻 do. | do. | do. | February to August |
| | | " | Haye 鰻 do. | do. | Artificial fly | April to September |
| | | " | Unagi 鰻 do. | do. | Small live fish | All the year |
| | | " | Kaidzu 海鯽 do. | do. | Prawns and crabs | April to September |
| | | " | Kurodai 烏鰒魚 Dentex griseus | do. | do. | March to September |
| | | " | Haze 沙魚 Gobiur virgo | do. | Mud-worms | do. |
| | | " | Seigo 鯉 Perca labrax Jap. | do. | do. | do. |
| | | " | Unagi 鰻 Anguilla Japonica | do. | Earth-worms | February to August |
| | | " | Karei 比目魚 Platessa variegata, etc., etc. | do. | Mud-worms | July and August |
| C | Nawa 繩 | Lines | Haze 沙魚 Gobius virgo | do. | do. | do. |
| D | Ami 網 | Nets | Koi 鯉 Cyprinus haematopterus | do. | Sweet potatoes and balls of rice | March to September |
| | I. Uchi ami 打網 .....from uchi, to cast, and ami, net..... | Casting net | All the smaller kinds of fish 諸小魚 do. 全 | Over all the Islands | ..... | In all seasons |
| | II. Yotsu de ami 罾網 ...from yotsu, four, te, hands, etc..... | ..... | Saitappo Tanago 鰕 Capoëta lanceolata | do. | ..... | do. |
| | III. Kake ami 掻網 .....from kake, to hook, etc. .... | ..... | Koi 鯉 Cyprinus haematopterus | Rivers and Lakes of Nippon | ..... | October, December, January |
| | IV. Sukui ami 罌網 .....from sukui, dip or scoop, etc. .... | ..... | Shira uwo 白魚 Funa 鯽 Carassius langsdorffii | do. | ..... | All the year |
| | V. Tengai ami 天蓋網 ...derivation uncertain, is a hand yotsu de ami ..... | ..... | Tanago 鰕 Capoëta lanceolata | Rivers of Nippon | ..... | March to July* |
| | VI. Machi ami 待網.....derivation uncertain, is a kind of sukui ami..... | ..... | All the smaller kinds of fish 諸小魚 Funa 鯽 Carassius langsdorffii | do. | ..... | March and April |
|  |  | ..... | Koi 鯉 Cyprinus haematopterus | Over all the Islands | ..... | May and June |
|  |  | ..... | Haye 鰻 do. | do. | ..... | October, November, Dec. |
|  |  | ..... | Unagi 鰻 Anguilla Japonica | Mountain streams all over Japan | ..... | March to September |
|  |  | ..... |  | do. | ..... | ..... |
|  |  | ..... |  | do. | ..... | During the rainy season |
|  |  | ..... |  | do. | ..... | or about May |
|  |  | ..... |  | do. | ..... | do. |

TABLE 4.— FRESH WATER FISHING.—Continued.

| | IMPLEMENTS. | FISH TAKEN. | LOCALITIES. | BAIT. | SEASON. |
|---|--|--------------|-----------------------------------|---------------------------------|----------------------------|
| D | Continued. | | | | |
| | VI. Continued.....Nets | Dojō 鱒 | Cobitis rubripinnis | Mountain streams all over Japan | During the rainy season or |
| | VII. Oshi ami 推網 .....from oshi, to press or push, etc. | Koi 鯉 | Cyprinus haematopterus | Lakes of Nippon | about May |
| | | Namadzu 鯰 | Slurus Japonicus | do. | All the year |
| | | Kame 龜 | Kind of turtle | do. | do. |
| | VIII. Masu ami 鱒網 .....from Masu, name of fish, etc. | Masu 鱒 | Yechiu, Yechida, Hida and Hitachi | do. | do. |
| E | Yeri .....no satisfactory derivation .....Mazes..... | Funa 鯽 | Carassius langsdorffii | Lakes of Nippon | During the winter months |
| | | Koi 鯉 | Cyprinus haematopterus | do. | All the year |
| F | Yana 鰻 .....no satisfactory derivation .....Weirs..... | | | | do. |
| | I. Yana 鰻 | Ayu 鱒 | Rivers of Nippon | | Autumn |
| | II. Yana ami (a) 鰻網第一種..... | Do. | do. | | do. |
| | III. Yana ami (b) 全第二種..... | Do. | do. | | do. |
| G | Do 漁 .....Baskets or traps..... | | | | |
| | I. Yebi do. 海老籠 .....from Yebi, the shrimp or crayfish, and do, a trap or basket | Yebi 海老 | Shrimp and crayfish | do. | Husks of rice, baked |
| | | Kani 蟹 | Crab | do. | do. |
| | | Funa 鯽 | Carassius langsdorffii | do. | do. |
| | II. Koi do. 鯉籠 .....from Koi, name of fish, etc. | Koi 鯉 | Cyprinus haematopterus | Rivers and lakes of Nippon | do. |
| | III. Funa do. 鯽籠 .....from Funa, name of fish, etc. | Funa 鯽 | Carassius langsdorffii | Rivers of Nippon | Bruised shellfish |
| | IV. Namadzu do. 鯰籠 .....from Namadzu, name of fish, etc..... | Namadzu 鯰 | Slurus Japonicus | do. | None |
| | V. Unagi do. 鰻籠 .....from Unagi, name of fish, etc. | Unagi 鰻 | Anguilla Japonica | Rivers and lakes of Nippon | Bruised shellfish |
| | VI. Tsuke shiba 猪把 .....from tsuke, to sink, and shiba, brushwood | Namadzu 鯰 | Slurus Japonicus | Lakes of Nippon | None |
| | VII. Take tsutsu 竹筒 .....from take, bamboo, and tsutsu, a tube..... | Unagi 鰻 | Anguilla Japonica | do. | Bruised shellfish |
| | VIII. O tatsube | | | | All the year |
| | IX. Tatsube | Mamadzu 鯰 | Slurus Japonicus | do. | Husks of rice, roasted |
| | | | | | During winter |
| | | Seigo 鰻 | Perca labrax Jap. | do. | do. |
| | | Moroka | do. | do. | do. |
| | | Funa 鯽 | Carassius langsdorffii | do. | do. |
| | | Yebi 海老 | Kind of prawn | do. | do. |
| H | Maki 捲 .....Dredges | | | | |
| | I. Koshi Maki 腰捲 .....from koshi, the loins, and maki, to wind... .. | Shellfish 貝 | | Rivers and Lakes | ..... |
| I | Unagi fumi 鰻踏 .....from Unagi, name of fish and fumi, to tread or trample | Unagi 鰻 | Anguilla Japonica | Lakes and canals | Spring to |
| | | Dojō 鱒 | Cobitis rubripinnis | do. | Autumn |
| J | Unagi kaki 鰻掻 .....from Unagi name of fish and kaki | Unagi 鰻 | Anguilla Japonica | Rivers and Lakes | All the year |
| K | Yasu 魚又 叉 猪 | Karei 比目魚 | Platessa variegata, etc. | Mouth of Rivers | ..... |
| | | Kochi 鰻 | Platycephalus guttatus, etc. | do. | ..... |
| | U 鵜 .....The Cormorant..... | Ayu 鱒 |  |  | ..... |

put into a square box or tray, the bottom of which is made of thin sticks of bamboo. Several of these boxes are placed open one upon another and the whole put on a pot of boiling water, by which means the contents are cooked by steam. After this the rice is allowed to cool and set to ferment, during which process a kind of white mould forms. Two or three days afterwards the rice is dried in the open air, mixed with an equal quantity of sweet rice wine or *mirin* and well kneaded, when it is fit for use. It is employed in the same manner as the *kasu* above described.

ASIATIC SOCIETY OF JAPAN.

A General Meeting was held in the Society's room, Kai Sei Gakko, on the 28th March, 1877, Sir Harry S. Parkes, the President of the Society, in the chair.

The minutes of the last meeting having been read and approved, the Secretary announced that at last Council Meeting the following gentlemen were duly elected members of the Society:—Rev. H. Maundrell of Nagasaki, Rev. C. S. Eby of Tōkiō, Dr. John A. McBride and Mr. James Begbie, both of the Japanese Agricultural Department; also that Dr. Eldridge was unanimously elected as a member of council, in place of Mr. Howell, who had left the country.

The Library Committee reported receipt of several very interesting periodicals, more especially that of the Madrid Geographical Society, which was evidently showing great activity in its researches. The Committee also complained that they could not yet discover the whereabouts of several missing books belonging to the library.

The Secretary, in the unavoidable absence of the author, read the paper for the day, "On Japanese Fisheries."

In recommending the paper to the consideration of the meeting, the President observed that Mr. Gregory had only treated of the implements used in fresh-water fishing, and had reserved his account of the apparatus used in sea fishing lest further details of a technical character should add inconveniently to the length of the paper. He was glad to add that Mr. Gregory had it in view to furnish another paper on the fisheries of Japan, which presented a wide and eminently practical field of enquiry. Fishing to the Japanese was as important a matter as cattle-breeding or sheep-farming was to ourselves. The extent to which fishing was carried on by the Japanese and Chinese as compared with other nations, both

Oriental and Occidental, was remarkable, and doubtless something might be learned from their wide experience in this industry. As to the implements used in fresh-water fishing he believed that the casting net of the Japanese showed remarkable skill, both in point of construction and the way in which it was handled, and he also had heard that the fishing rods of Japan were held in estimation by foreign anglers.

Prof. Wyckoff said that while living in Fukui he had frequently seen a curious method of fishing for *ai*, without bait. The apparatus consisted of a long, light bamboo pole, and an ordinary line, to the end of which a short cord, bearing six or eight hooks at intervals of about ten inches from one another, was fastened. This contrivance was employed only in swift, and comparatively shallow waters, and was used as follows: The fisherman waded out into the stream, and cast his line into the water above him, then carried his rod slowly down stream, the line of course being carried down by the current. After the line had been carried below him, it was drawn in, and if empty again thrown out above. When shoals were passing two or three fish were sometimes caught at a single cast, but it was not usually an expeditious method.

Prof. Wyckoff had often seen the casting-net used, and quite agreed with what was stated in the paper. He thought, however, that "throwing over the right shoulder," was the theoretical, rather than the practical method of casting. His own observation had been, that the person stood with the right side toward the spot where the net was to be cast. It was a matter of considerable skill to throw the net in such a way that it would spread to its greatest extent, and cover the largest possible space. The fisherman sometimes threw his net at random, but often watched to discover the presence of fish, by bubbles rising to the surface of the water, and then cast.

Prof. Marshall said that the *Kaki Shibu*, which was mentioned in the paper as used in making fishing-rods, was a very interesting substance and well worth the trouble of a chemical investigation. It had come under his notice several times, and he knew more especially of its strengthening and stringent properties. Paper was made very tough by the Japanese by applying this *kaki shibu* to it. Dr. Faulds said that the *kaki shibu* was a valuable substance in medical economy, and he thought it would be owing to its antiseptic properties that it was used in the manufacture of fishing tackle. He further added that when mixed with *sumi* (fine charcoal) a valuable paste was formed for blackening boards, and for this purpose he thought that such paste could be very advantageously introduced into schools.

In closing the discussion the President observed that Japan was the only country he was acquainted with where whales were caught in nets, and he referred to the description of catching whales in this peculiar way which was given in the 3rd volume of the Transactions of the Society,

and to the high value set upon whale-flesh as food by the Japanese. He alluded to the use of fire, which was so general in Japanese fishing, both in fresh and salt water, as a very attractive and serviceable contrivance. Referring to the importance of the salmon-fisheries of Japan, he mentioned that the average annual catch of one river in Yezo, the Ishikari, had been estimated by Captain Blakiston at 1,200,000 fish, and the sufficiency of the method pursued might be judged from the fact, given by the same authority, that as many as 16,000 fish are occasionally caught at one heave. Much of the benefit of this important fishing was lost to the Japanese because their method of curing the fish was so very imperfect. To foreign eyes, at least, Japanese salted salmon was not inviting. If it were better cured it might become an important article of export. The President concluded by expressing the obligations of the Society to Mr. Gregory for his paper and the hope that the subject would shortly be continued.

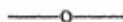
THE SPECIFIC INDUCTIVE CAPACITY OF GASES.

BY

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*Read at an Extraordinary Meeting of the Asiatic
Society of Japan, April 18th, 1877.*



It was formerly supposed that because a gas offered less and less resistance to the passage of an electric spark as its density was diminished, therefore a very rare gas would offer an extremely small resistance. The invention of the Sprengel Pump enabled the fallacy of this conclusion to be apparently proved, and it is now well known that no visible spark can be sent between two platinum points very near together in a perfect Sprengel vacuum even by means of a powerful Ruhmkorff coil.

As regards the Specific Inductive Capacity of gases, the only series of experiments with which we are acquainted is that of Faraday. The means in his power, however, of obtaining a perfect vacuum, and of measuring induction, were far inferior to those which now exist, and we must not conclude that the result obtained by him "the specific inductive capacity of all gases at all pressures is constant" either expresses an exact physical law or forms any criterion of what is to be expected in a perfect Sprengel vacuum. The theoretical conclusion, therefore, deduced in our paper on "The Viscosity of Dielectrics,"

that since a perfect Sprengel vacuum has the greatest known Resistance it may be found to have the smallest Specific Inductive Capacity, it is very desirable to test carefully, although this conclusion, at first sight, appears to be in direct opposition to the results obtained by so careful an experimental philosopher as Faraday.

That no visible spark can be sent by a powerful Ruhmkorff coil between two platinum points very near together in a Sprengel vacuum might be due to the vacuous space offering *not* an extremely *great* resistance but instead only a very *small* resistance; for it is well known that no optical or heating effect is produced by an induction coil unless there is a decided break in the continuity of the secondary circuit. To examine this a hermetically sealed Alvergnyat's tube was selected, in which the platinum points were about half a millimetre apart and between which no spark was producible by a Ruhmkorff coil, which through ordinary air gave sparks 8 centimetres long. The outside of the glass was chemically cleaned and the insulation of the tube tested by means of an electrometer. The platinum wires terminating outside in little brass rings, the tube was suspended by one of these rings S (Figure 1) from the insulated electrode of a delicate quadrant electrometer. S¹ being to earth, and a charge being given to S, it was found that the insulation of the space P P¹ was very great; hence it is the extremely great and not the extremely small resistance of the vacuous space which prevents the production of a spark.

To test if there was any induction between P and P¹ (this is always taken for granted, but we have thought it well to make an actual test) the tube S S¹ (Figure 1) was left suspended by S to the insulated electrode of the electrometer, the whole being completely surrounded by the metal case A B C D G H connected to earth, and with the other electrode of the electrometer. A stiff wire W from P¹ S¹ projects through a hole in the case, without touching the case, so that by means of W any charge may be given to P¹. To prevent induction outside the tube between the brass caps S, S¹ there is a sheet of

metal A B C D which acts as a screen dividing the metal case into two compartments, the hole E F, in this screen, being very little larger than the tube. The platinum wire P, the cap S, and the electrode were, therefore, shielded from all induction except through the vacuum from the platinum wire P¹. A leaden cup LL contained strong sulphuric acid to keep the space under cover quite dry so as to prevent surface conduction along the tube between the brass caps. On charging the wire W there was a motion of the spot of light which returned nearly to zero again on discharging the wire. This showed that there was induction through the mass of the glass or else through the vacuum. As, however, with this apparatus we could not determine how much was due to each of these causes we proceeded to make the apparatus shown in figure 2. Although devised for experiments on the Sprengel vacuum, we have only up to the present time used it to measure the specific inductive capacities of gases at different pressures. The apparatus about to be described has, during our investigation, undergone a variety of modifications; we shall, however, describe it as it is now, and indicate some of the changes experience has taught us to make. A B C D, E F G H (Figure 2) is a brass box $22\frac{1}{2} \times 19\frac{1}{2} \times 6$ centimetres, composed of brass plates $3\frac{1}{2}$ millimetres thick and strengthened with ribs. Eleven brass plates 18 centimetres square are fixed and kept at 3 millimetres apart, as shown in the figure, by means of ebonite racks, shown in section in I J, fitted into the two ends of the box. At the bottom of the box the plates rest on a strip of ebonite K L, which, as well as the racks, was chemically cleaned and paraffined before being fitted into the box. The plates 1, 3, 5, 7, 9, 11 are all connected with each other and with the brass box by soldered copper wires; 2, 4, 6, 8, 10 are connected with each other and with a long platinum wire W W by soldered copper wires. These two series of plates form our condenser. The platinum wire passes through a glass tube $35\frac{1}{2}$ centimetres long, chemically cleaned and paraffined, and very carefully cemented into a brass tube which

forms a part of the top of the brass box. At T¹ this glass tube is hermetically sealed and it is at this point only that the platinum wire touches the tube. M N is a metal cap containing cap cement, so as to render the joint between the brass and the glass quite air tight. P Q is another metal cap containing cap cement, to prevent motion of the top of the platinum wire breaking the hermetically sealed joint in the glass tube. R R R is an iron tube soldered quite tight into the brass box, and open at its lower end for connection with the Sprengel or other air-pump. The special form given to this iron tube was to prevent any irregularity in the working of the Sprengel pump sending the mercury into the condenser, an accident which occurred in the early part of the experiments, when the iron tube had a different shape, and which necessitated the taking to pieces of the brass box to remove the mercury.

The three conditions to be fulfilled in the construction of this apparatus were:—

- 1.—The plates 2, 4, 6, 8, 10 should be perfectly insulated from the plates 1, 3, 5, 7, 9, 11 and from the box.
- 2.—The condenser should be quite air tight.
- 3.—The relative positions of the plates should not be in the least altered by any yielding of the box, etc., on exhausting the air.

Simple as it might at first sight appear to be to satisfy these three conditions, it has nevertheless taken us several months to fulfil them all simultaneously. Sometimes (possibly from want of care on the part of the workmen) the final soldering up of the box spoilt the insulation of the ebonite inside, at other times the insulation would be good, but a small air leakage would be produced by the slight distortion of the box produced on exhausting the air; various contrivances tried for leading out the platinum wire by means of a tightly fitting ebonite collar quite failed; after many trials, conditions (1) and (2) were satisfied when it was found that condition (3) was not, for in order to get a condenser with as large a

capacity as possible it was the set of plates 1, 3, 5, 7, 9, 11 that were originally the insulated set and connected with the platinum wire W W W, while 2, 4, 6, 8, 10 were connected with the brass box, the box itself thus forming a part of the condenser; but it was found that after many trials the sides of the box approached the plates 1 and 11 a very little on exhaustion, thus increasing the capacity of the arrangement. However, by connecting 1 and 11 with the brass box as described above and making 2, 4, 6, 8, 10 the insulated series, this difficulty was removed.

Passing over one or two unfortunate fractures of the long glass tube, we ultimately succeeded in getting the arrangement quite satisfactory, at any rate for the best vacuums that could be obtained with a large continuous-acting Bianchi's air-pump (and we have not gone beyond that at present). The insulation too is also so good that there is no appreciable loss of charge in about one minute, when the difference of potentials between the coatings is two or three volts.

The mode of accurately measuring the capacity of our condenser when filled with air or other gases at different pressures had next to be considered. The first method we employed was as follows:—

A current from a battery of some 200 Daniell's cells joined in series was sent constantly through a large resistance U V (Figure 3). One coating of our condenser was connected with one coating of a $\frac{1}{2}$ Micro-Farad condenser, made by Messrs. Warden (of paraffined mica it is believed), and with one point S of the resistance coils. Two wires U and V attached to the two ends of the coil were used to charge the other coatings of these condensers respectively. The point of attachment of the wire S to the coil was moved until it was found that when the two condensers were discharged into one another after the removal of U and V there was no remanent charge. Then if X be the capacity of our condenser

$$X = \frac{1}{2} \times \frac{\text{resistance of V S}}{\text{resistance of U S}} \text{ micro-farads:}$$

The remanent charge was measured by discharging the condensers through a Thomson's very delicate reflecting galvanometer, adjusted so that one volt through a resistance of 120 megohms gave 130 divisions on the scale at one metre distance. As it was found very difficult to adjust S so that there was absolutely no remanent charge, we adjusted it until the deflection on discharging was small, then keeping the ratio of $V S$ to $U S$ constant, m say, we made 15 observations of the remanent charge, obtaining a mean reading of, say, a scale divisions. Now, with another ratio of $V S$ to $U S$, say n , we made 15 more observations, obtaining a mean reading of, say, b scale divisions. Then since a and b are small

$$X = \frac{1}{3} \times \frac{a n + b m}{a + b} \text{ micro-farads.}$$

The disadvantage of this method was, that since the capacity of our condenser with very small compared with one third of a micro-farad, the difference of potentials between V and S was very small even when 200 cells were employed. To overcome this objection we adopted an improved, and somewhat novel, method of testing. The wire S was attached nearer the centre of the coil, the $\frac{1}{3}$ micro-farad condenser was charged with the wire V and insulated, the air-condenser was charged with wire U , insulated, and discharged into the $\frac{1}{3}$ micro-farad condenser, separated and again charged with the wire U and again discharged into the $\frac{1}{3}$ micro-farad condenser (which of course had not again been charged with the wire V), the air condenser was a third time charged with the wire U and again discharged into the $\frac{1}{3}$ micro-farad condenser, etc. By adjusting S properly and by charging the air-condenser say ten times, and ten times discharging it into the $\frac{1}{3}$ micro-farad condenser, the remanent discharge could be made nought. Or rather, having adjusted until the remanent charge after such an operation was very small, we were able, by taking the means of a number of observations to find what adjustment of S would have made the remanent charge exactly nought by a calculation similar to that given above. This being done, it may easily be shown that the value of

X may be found by eliminating nine unknown quantities from ten equations. A disadvantage of this method is that some very small portion of the charge of $\frac{1}{3}$ micro-farad condenser may be lost on account of not perfect insulation, since some short time must elapse between the first and the tenth discharge of the air-condenser into it. A more serious and unexpected difficulty, however, was found to arise from an extremely slight absorption of charge that took place in the $\frac{1}{3}$ micro-farad condenser, and after many experiments we were compelled to abandon this method also, as unlikely to furnish accurate measurements of the extremely small difference in the specific inductive capacity of gases, the existence of which Faraday had not been even able to detect. From the experiments, however, made in the manner above described, it appeared that a vacuum had a less specific inductive capacity than air, but the method was not sufficiently exact to determine the exact amount of this difference.

It was, therefore, necessary to use for our standard condenser an air condenser of which the capacity would remain quite constant. W (Figure 4) is a stiff brass plate 3 millimetres thick, 42.6 centimetres wide, and 42.6 centimetres long, strengthened at the back with brass ribs; this is supported on three clean and paraffined ebonite levelling screws, pointed at the bottom, and resting on a very firm stone pillar Y; Z is a piece of hard wood, coated on its upper surface with tin foil and forming the earth coating of this standard condenser. The whole is covered in with a metallic box not shown in the drawing, and which is connected with Z. By raising or lowering the levelling screws the capacity can be diminished or increased. The whole, therefore, forms an air condenser of adjustable capacity, but which may be expected to keep a perfectly constant capacity as long as the levelling screws are untouched. The wooden tin-foil-covered plate Z was used in preference to a stiff brass plate from motives of economy. Our measurements, however, became so exact that the yieldings of the tin foil, although very slight, could be detected: in future investigations, therefore, we intend

to substitute a stiff brass plate. We shall call the condenser just described the open air condenser, or simply "the open," to distinguish it from the closed air tight condenser, shown in figure 2, previously described, and which we shall call "the closed."

The method of comparing their capacities was as follows:—The uninsulated coatings of the two condensers were connected with the outside of a very delicate quadrant electrometer, with one pair of quadrants, and with the earth. A battery of 87 Daniell's cells arranged in series was employed to send a constant current through a resistance coil of 10,000 ohms, the two ends of which were connected with a reversing key, by means of which either of these ends could be connected with the earth or with the insulated coatings of either one of the condensers. The object of the reversing key was to enable us to charge the condensers successively with the *whole* battery, the one receiving a positive charge in its insulated coating, and the other a negative charge. The condensers then being connected with one another their remanent charge was measured by measuring its potential with the electrometer. The use of keeping the battery constantly connected with the resistance coil was so that its electromotive force could be measured in scale divisions, by observing the deflection corresponding with the one hundredth part.

Full precautions were taken to ensure, first good insulation of all parts of the keys employed, secondly protection from induction by our bodies, &c., on the leading wires, metal portions of the keys, &c. Between every pair of observations both condensers were always short circuited for 30 seconds. The interval between two successive series of observations was about 3 minutes, but as the substances experimented on, dry air, vacuum, &c., were taken in turn, the interval between two sets of experiments on the same substance may have been considerable. The specific inductive capacity of dry air having always been regarded as unity, we took this as our standard substance. A set of experiments on dry air was, therefore, made *imme-*

diately before and after a series of experiments on any other substance.

In the following tables the deflections given are each the mean of ten observations, with the exception of the first number, which is the mean of eight observations. A positive deflection means the closed has a greater capacity than the open, or

$$\frac{c}{o} > 1,$$

and a negative deflection

$$\frac{c}{o} < 1.$$

The ratio of *C* to *O* given in column 3 of the following table is calculated as follows:—

Let *d* be the deflection of the electrometer corresponding with a difference of potentials equal to one hundredth of the electromotive force of the battery, let *p* be the mean deflection given in column 2 for any one of the substances dry air, vacuum etc., then

$$\frac{c}{o} = \frac{100 d + p}{100 d - p}.$$

All the gases used in all the experiments were very carefully dried before introduction into the condenser.

| <i>Dielectric.</i> | <i>Potential of Re- manent charge. Mean of 10 Observations.</i> | $\frac{C}{O}$ | <i>Remarks.</i> |
|--------------------|---|---------------|---|
| Air | —19'5 | 0'9981 | |
| Vacuum..... | —29'97 | 0'9970 | { Pressure varying from 15 to 90 millimetres. |
| Air | —23'13 | 0'9977 | |
| Vacuum..... | —35'14 | 0'9965 | { Pressure varying from 15½ to 76 millimetres. |
| Air | —22'00 | 0'9978 | |
| Vacuum..... | —38'74 | 0'9962 | { Pressure varying from 20 to 75 millimetres. |

The change of pressure produced in the experiments with the vacuum was due to a slight leakage in the connecting tubes, barometer gauge, etc.

One one-hundredth of the battery gave a deflection of the electrometer needle equal to 202'1 scale divisions.

To give an idea of the accuracy of the method we give as a specimen in the following table the ten observations in full of which—38.74 recorded above is the mean.

| Zero. | Vacuum | |
|------------|---------------|-------------|
| | Reading. | Deflection. |
| 74.5 | 33.9 | —40.6 |
| 74.1 | 28.8 | —45.3 |
| 74.1 | 19 | —55.1 |
| 74.1 | 39 | —35.0 |
| 74.1 | 41 | —33.1 |
| 74.1 | 41.5 | —32.6 |
| 74.6 | 45.5 | —29.1 |
| 75.5 | 34.5 | —41.0 |
| 76.0 | 43 | —33.0 |
| 76.6 | 34 | —42.6 |
| <hr/> | | |
| | Mean —38.74 | |
| c | 20210 — 38.74 | |
| o | 20210 + 38.74 | |
| | = 0.99617 | |

The probable error of one of these observations, as calculated by the method of least squares, is 5.19. The probable error of the result (38.74) is 1.6, or about 4 per cent. Similarly the mean error of each set of ten observations may be taken as about 4 per cent. Now as the battery did not alter appreciably during one day's experiments we have merely got to consider how much the ratio of *C* to *O* will be affected by an error of 4 per cent in the mean of one set of ten observations. Using 40.3 instead of 38.74 we find

$$\frac{c}{o} = 0.99602$$

instead of 0.99617 obtained by using 38.74 showing a probable error of only 0.00015 in the ratio.

OBSERVATIONS CONTINUED.

March 4th, 1877.

The open condenser re-adjusted :

| Dielectric. | Potential of Residual charge. Mean of 10 Observations. | $\frac{C}{O}$ | Remarks. |
|--------------|---|---------------|--------------------------------|
| Air | +43.36 | 1.0043 | |
| Vacuum | +21.53 | 1.0021 | Pressure about 20 millimetres. |

One one-hundredth of the battery gave a deflection 201.0,

March 5th, 1877.

The open condenser slightly re-adjusted.

| | | | |
|-----------------------------|---------|--------|--|
| Air | + 13.88 | 1.0013 | |
| Vacuum | - 6.05 | 0.9994 | { Pressure 29 millimetres, slowly increasing. |
| Air | + 20.70 | 1.0019 | |
| Vacuum | + 7.03 | 1.0006 | { Pressure varying from 24 to 95 millimetres. |
| Carbonic di- oxide | + 23.90 | 1.0022 | Diluted with a little air. |
| Carbonic di- oxide | + 17.60 | 1.0016 | Diluted with a little air. |
| Air | + 11.52 | 1.0011 | |
| Air | + 25.79 | 1.0025 | |
| Carbonic di- oxide | + 33.15 | 1.0032 | Diluted with a little air. |
| Carbonic di- oxide | + 39.90 | 1.0038 | Diluted with a little air. |
| Air | + 39.00 | 1.0037 | |

As the exact amount of air in the carbonic dioxide of the previous experiments was unknown, we repeated the experiments with purer gas.

| | | | |
|-----------------------------|---------|--------|--|
| Air | + 19.18 | 1.0018 | |
| Carbonic di- oxide | + 27.01 | 1.0026 | |
| Carbonic di- oxide | + 13.64 | 1.0013 | |
| Air | + 4.35 | 1.0004 | |

March 7th, 1877.

The open condenser re-adjusted. Slight leakage in india-rubber connecting tubes partially remedied.

One one-hundredth of the electromotive force of the battery gave 209.75.

| | | | |
|----------------|---------|--------|-------------------|
| Dry air | + 4.50 | 1.0005 | |
| Hydrogen | + 9.41 | 1.0009 | Diluted with air. |
| Hydrogen | + 25.17 | 1.0024 | Diluted with air. |
| Air | + 22.98 | 1.0022 | |
| Coal gas | + 22.86 | 1.0028 | |
| Coal gas | + 36.9 | 2.0035 | |
| Air | + 34.23 | 1.0032 | |

One hundredth of the electromotive force of the battery gave 206 and after some time 210.

| | | | |
|--------------------|--------|--------|---|
| Air | +14.76 | 1.0014 | Pressure varying from 5 to 74 millimetres. |
| Vacuum | +16.08 | 1.0015 | |
| Air | +40.67 | 1.0039 | Moderately pure. |
| Hydrogen | +41.96 | 1.0040 | |
| Air | +52.04 | 1.0050 | |
| Sulphuric dioxide. | +75.13 | 1.0072 | |
| Air | +47.89 | 1.0046 | |

March 11th, 1877.

One one-hundredth of the electromotive force of the battery gave a deflection on the electrometer scale of 210.5.

The open condenser slightly re-adjusted.

| <i>Dielectric.</i> | <i>Potential of Re- manent charge. Mean of 10 Observations.</i> | $\frac{C}{O}$ | <i>Remarks.</i> |
|--------------------|---|---------------|--|
| Air | —22.64 | 0.9978 | Moderately pure. |
| Hydrogen | —29.65 | 0.9972 | |
| Air | —29.01 | 0.9973 | |
| Vacuum | —56.17 | 0.9947 | Pressure about 5 milli- metres, increasing. |
| Air | —53.93 | 0.9949 | |
| Hydrogen | —46.20 | 0.9956 | Moderately pure. |
| Air | —39.99 | 0.9962 | |

Waited about ten minutes.

| | | |
|--------------------|--------|--------|
| Hydrogen | —46.82 | 0.9955 |
| Air | —49.12 | 0.9954 |
| Sulphuric dioxide. | +10.15 | 1.0009 |
| Air | —37.33 | 0.9964 |

One one-hundredth of the electromotive force of the battery gave a deflection on the electrometer scale of 205.

By dividing the value of $\frac{C}{O}$ for any one of the substances by its corresponding value for dry air, we obtain the specific inductive capacity of the substance, that of air being called unity. As in all cases (with a few exceptions quite at the beginning) a set of experiments for dry air

was made at about equal intervals of time before and after the set of experiments corresponding with any other substance, the division we have employed in each case in obtaining the following table was the arithmetic mean of the two values of $\frac{c}{o}$ obtained with dry air. This eliminates the error that would otherwise be produced by the slow alteration that occurs during each set of experiments in the value of $\frac{c}{o}$ for dry air.

In the last column in the following table we have given approximately the weight which in our opinion ought to be given to each result.

| <i>Vacuum.</i> | <i>Carbonic Dioxide.</i> | <i>Hydrogen.</i> | <i>Coal-gas.</i> | <i>Sulphuric Dioxide.</i> | <i>Weight of Result.</i> |
|----------------------------|----------------------------|----------------------------|------------------|---------------------------|--------------------------|
| 0.9984 0.9980 0.9985 | | | | | 3 1 2 |
| | 1.0003 1.0004 1.0008 | | | | 0 0 2 |
| 0.9988 | | 1.0003 0.9997 | 1.0004 | 1.0024 | 0 2 2 2 2 |
| 0.9986 | | 0.9996 1.0000 0.9998 | | 1.0050 | 2 2 2 2 2 |

The close agreement of the results for the vacuum and of those for hydrogen show that when the nature of the dielectric is nearly the same in all the trials the probable error is very small. Thus the probable error of the mean 0.9998 for hydrogen is 0.00005 as calculated (by the method of least squares) from the four observations on which dependence can be placed, the first result for hydrogen being useless, as we knew that the hydrogen was

diluted with air. The probable error of *each* of the above four observations, as calculated from them alone, is 0.0001, and this is not very different from 0.00015 previously found for the probable error of ten single observations for a vacuum. It would seem, therefore, that the errors are not so much due to differences in the purity of the hydrogen employed as to other unavoidable errors in the apparatus.

Taking the proper means by using the weights given in the last column of the previous table, we find

| <i>Substance.</i> | <i>Specific Inductive Capacity.</i> | <i>Remarks.</i> |
|--------------------|-------------------------------------|--|
| Air..... | 1.0000 | Taken as standard. |
| Vacuum..... | 0.9985 | The vacuum was always less in specific inductive capacity than air, even single observations showing a less capacity. |
| Carbonic Dioxide.. | 1.0008 | When air was allowed to mix with the carbonic dioxide the specific inductive capacity more and more approached 1.0000. |
| Hydrogen..... | 0.9998 | |
| Coal Gas..... | 1.0004 | |
| Sulphuric Dioxide. | 1.0037 | |

Thus there seems to be a connection between condensability, diffusivity, viscosity, high index of refraction, and specific inductive capacity of a gas.

The method of measuring the specific inductive capacity which we have employed is susceptible of any amount of accuracy, depending on the battery power used. If we can succeed in the plan we have been endeavouring to arrange, of using an electrical machine with our delicate electrometer, we shall be able to measure the specific inductive capacity with still greater accuracy. For a vacuum, however, in consequence of the facility with which electricity of high potential escapes, an electrical machine will probably give less accurate results than a battery.

We have to express our thanks to one of our students, Mr. Kawaguchi, for assistance rendered by him in the early portion of this investigation, and to another student, Mr. Nishikata, for aid given us towards the conclusion.

Induction in a Sprengel vacuum which was the original object of our investigation, and for which our apparatus was specially designed, will form, we hope, the subject of a subsequent paper.

THE IMPORTANCE OF A GENERAL SYSTEM OF SIMULTANEOUS OBSERVATIONS OF ATMOS- PHERIC ELECTRICITY.

BY

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*Read before the Asiatic Society of Japan,
on the 25th April, 1877.*

—O—

The great practical value of simultaneous meteorological observations is the assistance they afford us in enabling fairly accurate predictions of the weather to be made some hours in advance. It is unnecessary for us to enter fully into what is being done, and what has been done in this direction. The weather maps that are issued three times a day by the United States War Department accompanied by, 1st. the table of records of observations, 2nd. the synopsis of these reports, 3rd. the table of probable rain and wind, 4th. the list of facts verifying or disproving the probabilities issued with the previous map, are evidences of the great labour that is bestowed on meteorology by the United States Signal Office, and of the great utility of this work.

But all these observations are derived from instruments like the barometer, thermometer, etc., which are only affected by the air or other bodies in their immediate neighbourhood. A disturbance produced in the higher regions of the atmosphere cannot possibly affect a barome-

ter or thermometer until this wave of disturbance has travelled down to the lower air strata, whereas electrical and magnetic instruments are instantaneously sensitive to disturbances produced at great distances: the Pneumatic Despatch and the Electric Telegraph may, in their difference of speeds, be taken as fairly analogous with the sluggish barometer and the ever-watchful electrometer. Now Dr. Veeder has this evening pointed out to us what great effects on the weather are produced by such disturbances in the higher regions, and why, therefore, in consequence the United States Government observers are specially instructed to observe, and record, the motion of the clouds in the *upper* regions. These instructions, however, they, of course, are utterly unable to carry out when the lower regions are also cloudy. Dr. Veeder has also drawn our attention forcibly to the fact that even surface winds, although they affect the weather, produce no changes in the barometer.

Now since the value of all storm warnings increases with the time by which they precede the danger, the day may come when electrical and magnetic observations may not only aid, but actually supplant, barometric observations.

But if an electrometer arranged to measure atmospheric electricity be always varying in its indications, then it may be objected at the outset that we cannot make any use of such observations, for where are the laws which connect wind and rain with the electric potential of the atmosphere. As well, however, fifty years ago might it have been objected that, as storms were very complicated phenomena and as their connection with atmospheric pressure, temperature, etc., was very vague, it was quite idle to make systematic meteorological observations. Had such objections, however, been allowed to carry weight then, the regular reports of the United States Signal Office and of other similar offices (which reports, we think, we are right in regarding as among the triumphs of modern science) would have had no existence. But we may go even farther than this. Not only has experience hitherto

always shown the wisdom of making regular observations even when their practical value could hardly have been foreseen, but in the case of atmospheric electricity, or rather in the case of its allied subject, natural currents in telegraph lines, one of our greatest meteorologists, the late Admiral Fitzroy, has testified to their value in his forecasts of the weather. Mr. Cromwell Varley, the well known electrician, having noticed that on several occasions earth currents were followed by a change of weather, communicated this fact to Admiral Fitzroy, who found such information of so much assistance to him in predicting the coming of storms, that he requested to have it regularly supplied "On some occasions," says Mr. Varley, "Admiral Fitzroy could see "the approach of a storm days before the barometer or thermometer indicated anything of the kind."

As the time has now arrived when it appears to us to be becoming the duty of all civilized peoples to coöperate in a general system of simultaneous observations of atmospheric electricity, it may be well to consider—first, what observations have been made, and what has been learnt from them; secondly, what is the proper way to make such observations.

Our present knowledge of this subject may be summed up nearly in the words of Sir Wm. Thomson, in his address as President to the Society of Telegraph Engineers. Suppose for a moment that there were no electricity whatever in the air—that the air was absolutely devoid of all electric manifestation, and that a charge of electricity were given to the whole earth. For this no great amount would be necessary. Such amounts as we deal with in our great submarine cables would, if given to the earth as a whole, produce a very considerable electrification of its whole surface. We know the comparison between the electro-static capacity of one of the Atlantic cables, with the water round its gutta-percha for outer coating—and the earth, with air and infinite space for its outer coating. For since the earth's radius is about 630 million centimetres, its capacity is about 630 micro-farads,

or about that of 1,600 miles of cable. Well now, if all space were non-conducting—and experiments on vacuum tubes seem rather to support the possibility of that being the correct view—if all space were non-conducting, our atmosphere being a non-conductor, and the rarer and rarer air above us being a non-conductor, and the so-called vacuous space, or the inter-planetary space beyond that (which we cannot admit to be really vacuous), being a non-conductor also, then a charge could be given to the earth as a whole, if there were the other body to come and go away again, just as a charge could be given to a pithball electrified in the air of this room. Then, I say, all the phenomena brought to light by atmospheric electrometers, which we observe on a fine day, would be observed just as they are. The ordinary observations on atmospheric electricity are precisely the same as if the earth were electrified negatively and the air had no electricity in it whatever. In rainy weather, however, the potential of the atmosphere referred to that of the earth is sometimes positive and sometimes negative.

Observations made everywhere in the northern hemisphere tend to show that the potential is greater in summer than in winter, but the months of maxima and minima appear to differ at different places. Observations made at Kew and at Windsor in Nova Scotia show distinctly two maxima in the year, those at Brussels and Kreuznach only one. Both the Kew and Brussels observations show in addition two maxima daily at 8 a.m. and 10 p.m. in July, at 10 a.m. and 7 p.m. in January, and at about 9 a.m. and 9 p.m. in the spring and autumn. Although, therefore, all the tests made at different parts of the earth's surface in fair weather (except some of doubtful meaning made at the Peak of Teneriffe in the early days of this question) have shown the earth's surface to be negatively electrified, the amounts of the electricity existing at the same time at different places will be very different; and this difference manifests itself in a manner often extremely disagreeable to the Telegraph Engineer—in natural line currents.

The country in which these natural line currents have been most carefully studied is undoubtedly British India, since the uniform system of land-line testing employed in the Government Telegraphs throughout that country causes the accurate measurement of these currents to be daily carried out. From the results of 10,000 such measurements it is seen that in India the direction of the current is far more constant than its magnitude, and on the whole there appears to be a marked preponderance of currents of positive electricity flowing from the east to the west, that is with the sun; and such a current the laws of electro-magnetism tell us would be consistent with the earth's magnetism.

Observations made on the Atlantic Cables tend to show that when there are no unusual disturbances the earth currents at one end have two positive maxima and two negative maxima daily. Submarine cables, however, even when long are far less disturbed by terrestrial currents than land lines, which may possibly be due to the sea having a far greater electric conductivity than the land.

Since the early days of telegraphy a large number of observations of natural currents have been made at the principal London Office in Telegraph Street, the results of which were communicated to the Astronomer Royal. These tests seemed to show that natural currents in land lines were the continuations of the submarine currents which were arrested by the comparative non-conductivity of the land, for on Mr. Varley's endeavouring to find the neutral, or equipotential line, for the currents on the east coast of England, he found it to coincide approximately with the shore line.

Attempts have been made by private people to observe terrestrial currents on short telegraph lines of a few hundred yards which they have erected for this purpose. All such efforts, however, have been comparatively useless, for the following reason:—The copper *earth-plates* which are buried at the two ends of a telegraph line will, on account of their slightly different electric state, depending on the amount of moisture, oxidation, etc., almost invariably pro-

duce a current. This current on a long telegraph line will be insignificant compared with the current due to atmospheric causes, but on a short line it will often completely overcome, and mask, the latter. For observatories, therefore, an experimental line should be at least 6 or 7 miles long, and two such should be erected at right angles to one another so that an idea of the true direction of the current may be formed. Long telegraph lines, however, may even be expected to give better results when a proper instrument, such as will be described further on, is employed for the systematic registration of the natural currents.

During auroras these currents become extremely strong, sometimes as great as can be produced by the employment of a battery of 2,000 Daniell's cells, and occasionally even exceeding this. Of such currents the most extensive set of simultaneous observations that have been made was during the remarkable aurora of February 4th, 1872; but as on that occasion these observations were not the result of any general system of measurement but owed their origin to the fact that the currents became so strong as to interfere with the working of all the telegraph lines throughout the world, it cannot be expected that any large amount of information can be derived from the mass of records made on that day. At first sight it might be presumed that the times at which the strong currents made their appearance on the different lines would determine the rate at which the phenomena propagated itself over the earth's surface, but if it be remembered that the delicate instruments employed at observatories would be affected long before those used in land-line-telegraph offices, and that the receiving instruments used on submarine cables, although much more sensitive than the land-line instruments, are by Mr. Varley's plan of using condensers so arranged as to be extremely little affected by natural currents, it will be seen that the recorded time of these appearances of the strong currents on the different lines is useless for scientific purposes; also it must not be forgotten that, as the stoppage of a telegraph line represents so much loss of money, the signallers at the commencement of imperfect

writing are all busily engaged in attempting to restore communication and have no time for making scientific entries in note books. One point, however, can be learnt from the observations made on February 4th, 1872, and that is this. First the general direction of the positive currents was from east to west, that is with the sun; secondly, along lines running north and south the currents were comparatively weak.

It is well known that auroras are accompanied by magnetic disturbances, and as Sir E. Sabine has pointed out, the years of maximum sun spots are those of greatest disturbances in terrestrial magnetism: we may, therefore, conjecture that atmospheric electricity and sun spots will be found connected.

There seems to be no doubt now that earthquakes are preceded, or accompanied by, unusual strong natural currents in telegraph lines. As far as we are aware, attention was first drawn to this by one of the writers of this paper in a communication made to the Asiatic Society of Bengal in June 1871, in connection with the Indian earthquake of February 16th of that year. The Indian earthquake again of December 15th, 1872, was preceded with such strong earth currents during the evening of December 14th in the land-lines from Valentia to London that, in order to send messages it was necessary to loop the lines, by means of which the current in the one line was made to neutralize that in the other. The Egyptian earthquake of January 12th, 1873, was preceded for some days by equally strong natural currents. This earthquake was also accompanied by an eruption of the volcano Shaptar Jokull in Iceland, which lasted from January 9th to January the 12th, and it is interesting to notice, as Mr. Graves of the Atlantic Cable Co. has pointed out, that a direct line drawn from Cairo to Iceland crosses the telegraph wires from Valentia to London. Again the Italian earthquake of March 17th, 1875, was accompanied by great disturbances on the land lines of Italy. One case published by Mr. Varley in 1873 of a momentary current observed by him in 1864 in a cable coiled up in

a tank, simultaneously with a slight earthquake shock in England must, of course, not be included in the above list, as here the momentary current was produced by the actual tilting of the cable tank and not by a great difference between the earth's potential at two remote places. Such a current as that observed by Mr. Varley is generally noticed during the laying of a submarine cable each time the ship pitches, in consequence of the cable being thus moved backwards and forwards across the earth's magnetic lines of force. When the systematic testing of natural currents is introduced into the Japanese telegraphs, and this, judging from the progress made in that department during the last few years, we hope to see at no very distant date, then the scientific world may expect to receive such a fund of information on the connection of these currents with earthquakes as will remove this subject from the realms of conjecture and place it in the region of certainty.

In what has preceded we have briefly indicated our reasons for concluding with a fair amount of certainty that (1) atmospheric electricity, (2) auroras, (3) earthquakes, (4) magnetic disturbances, (5) natural currents in telegraphic lines, (6) sun spots, and (7) wind storms, are all linked together, and we feel that if this is shown nothing more is needed to induce thinking people to interest themselves in the subject of this paper.

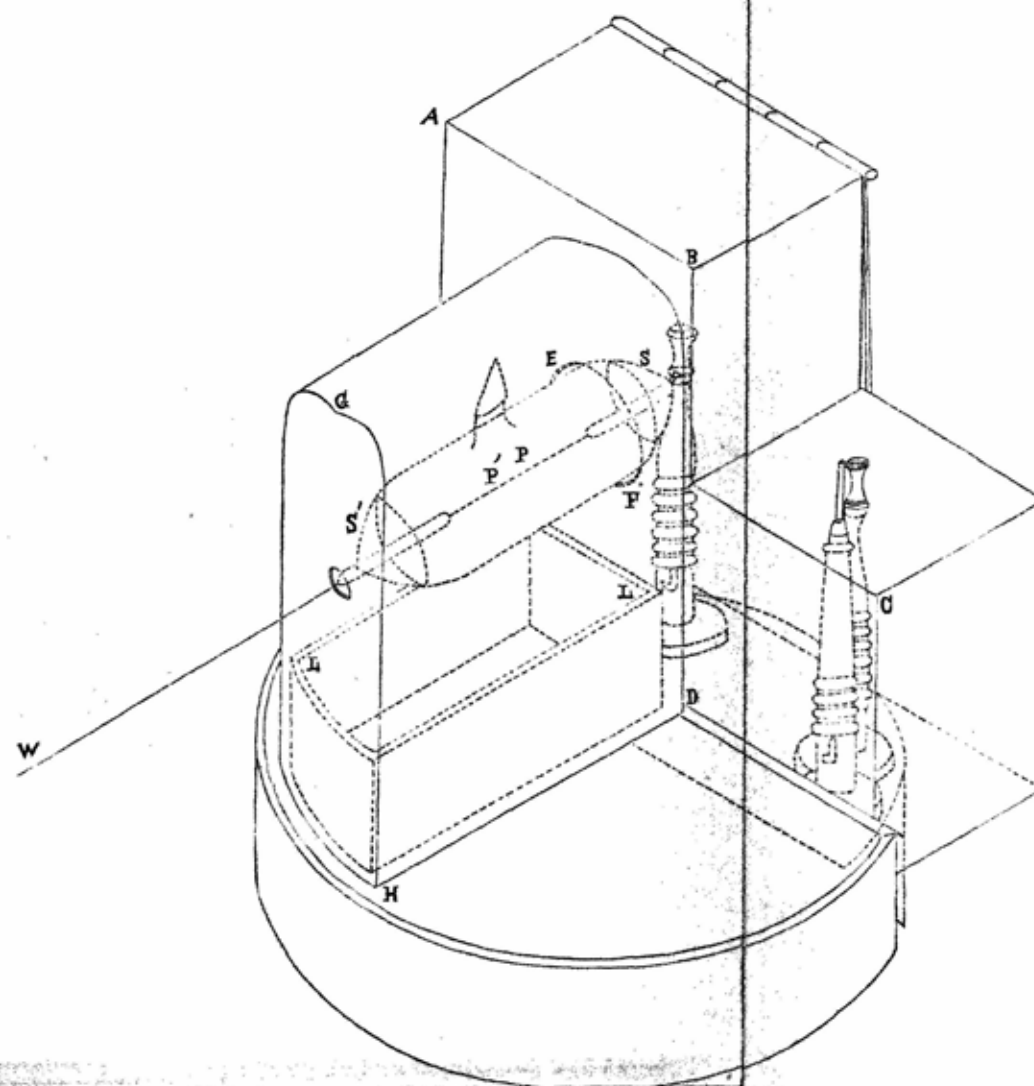
As regards the methods of measuring the atmospheric potential, we have not much to add. Sir Wm. Thomson's quadrant electrometer, combined with his water dropping collector, forms a very delicate measuring apparatus for observatories, and can easily be made self recording; his portable electrometer and burning match may be used instead by travellers, or when neither very delicate observations nor automatic records can be taken. Full instructions for the use of this latter instrument were supplied in the manual furnished to the officers who accompanied the late Arctic expedition, and may be obtained by any one desiring to use the instrument.

Concerning natural line currents a mass of information could be collected if telegraph operators everywhere would, when no messages were being sent or received, make frequent observations of a moderately high resistance tangent galvanometer placed between the line and the ordinary receiving instrument, or between the receiving instrument and the earth plate. Although this would entail but very little extra work on the signallers, it is possible, nevertheless, that considerable difficulty might be experienced in inducing private Telegraph Companies to issue rules giving such duties to their employés. Government administrations, however, might, in view of the very important information to be gained, be prevailed upon to issue such regulations, and it is the duty of scientific men to urge the matter. But better results would probably in all cases be obtained if the Royal Society, the British Association, and other similar scientific societies, would furnish telegraph offices with self-recording instruments, guaranteeing, of course, that their use would not interfere with the ordinary working of the telegraph line. Such an instrument might be cheaply made, and we would suggest the following as a possible form:—Between the telegraph line and the receiving instrument let there be inserted, on every line in all important offices, a long wire forming a coil about 15 centimetres internal diameter with its plane parallel to the magnetic meridian. Turning on a pivot fixed at the centre of this coil is a thick short magnet about 2 centimetres long, or a system of magnets, carrying a brass disc about 12 centimetres in diameter and of such thickness that the time of oscillation is about 5 seconds. A strip of photographic sensitized paper, such that it requires about 5 minutes to be decidedly blackened under such diffused light, whether sunlight or lamplight, as may be available, and about 12 centimetres broad is moved along underneath and parallel to the disc at the rate about 10 centimetres per hour, and so that the centre line of the paper passes under the centre of the brass disc. A round hole 2 millimetres in diameter with bevelled edges near the circumference of the disc, allows

diffused light to blacken a small portion of the sensitized paper. The magnitude of the steady natural current will, therefore, be always registered, while rapid variations of the current produced by the signalling will have no effect in consequence of the large moment of inertia of the disc. The rollers on which the paper is wound might be moved by a very simple clock going for, say, 15 hours, but which would be regularly wound up every morning and evening, at which time the signaller would make a pencil mark on the paper. These marks would be of great assistance in measuring time along the paper when it was examined, and would also check any great irregularity in the going of the roller clock. The sensitized paper, ready wound on the rollers, would be supplied in closed tin boxes, each box containing sufficient paper for one month's use. The box would be put in position underneath the disc, the projecting axle of the roller being connected with the clock by means of a catch, and a sliding tightly fitting door opened in the top of the box to allow the light which passes through the hole in the galvanometer disc to fall on the paper. At the end of the month the slide would be closed and the box returned to the person who had charge of the investigation, who would then fix the photograph, and refill the roller with fresh paper. Removing one box from underneath the galvanometer and substituting another would not, of course, stop the working of the line, even for a second, since the line and galvanometer connections are not interfered with.

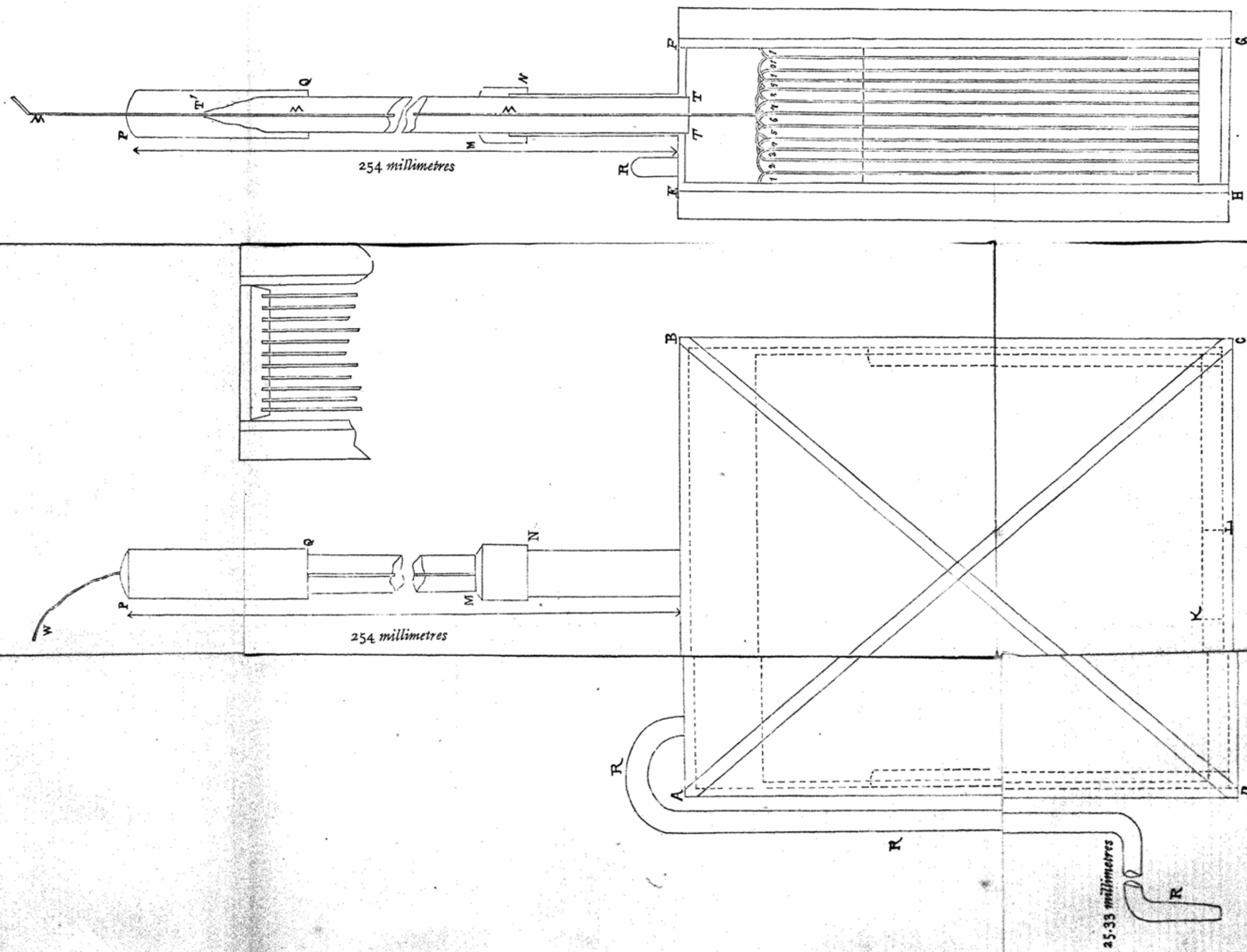
It might be objected that not only would sudden changes in the current produced by signalling leave no record on the paper, but sudden variations in the natural current would also pass by unrecorded; undoubtedly if the changes in the natural currents were comparable with the making and breaking of the signalling current both as regards rate and intensity of change this would be the case, and it is difficult to see how any instrument could be devised in which it would be otherwise. But this objection is not a serious one, since such sudden changes are only produced during a magnetic storm, and it is not from such

—FIGURE 1.—



Top of Electrometer.

Figure 2.
AIR TIGHT
ELECTRIC CONDENSER
3 of full size



Lengths in millimetres are 3 of real lengths.

RECEIVED

1911

Figure 3.

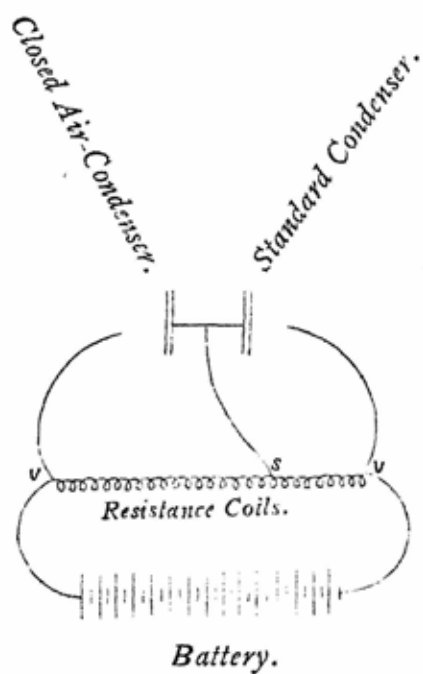
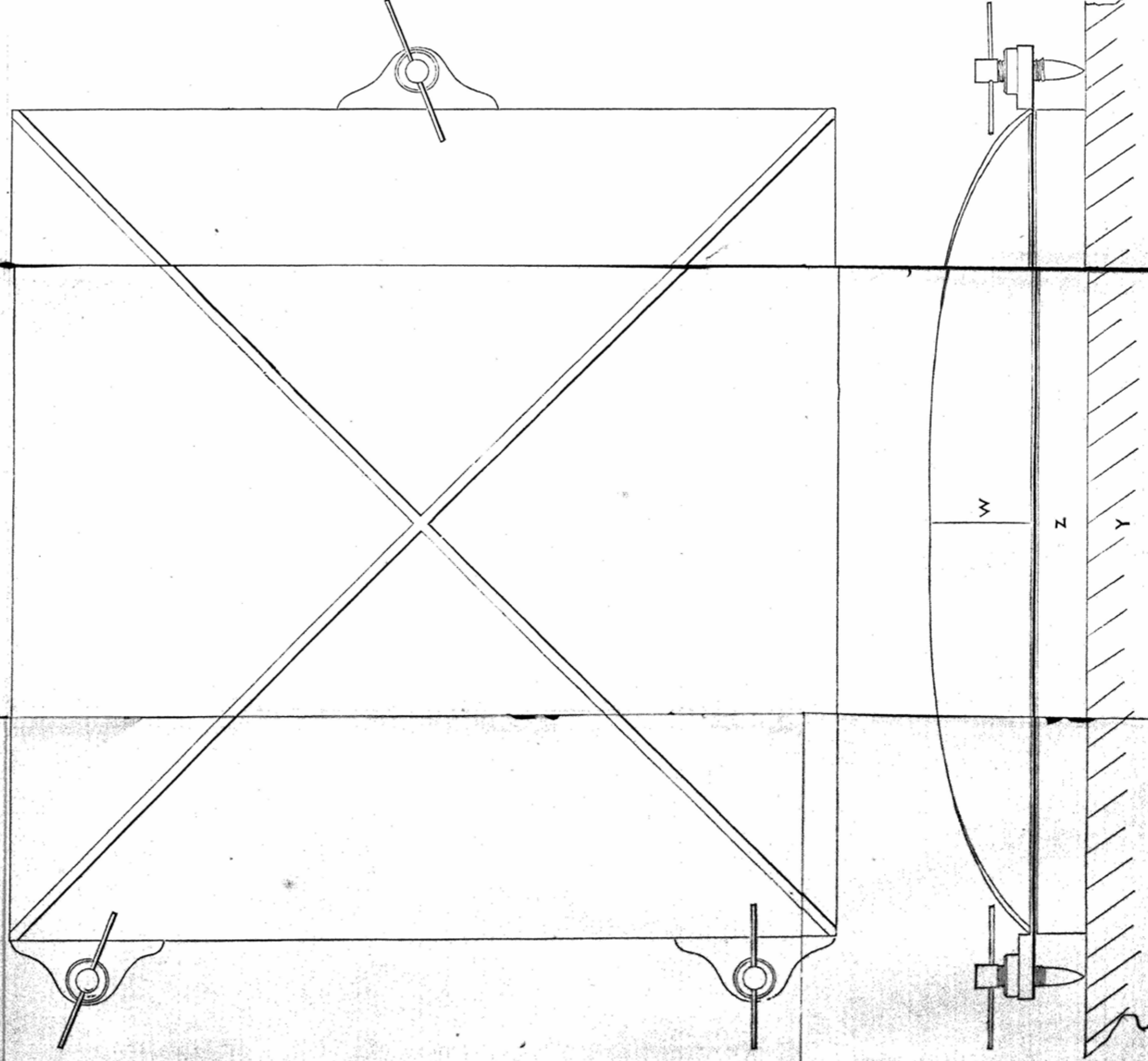




FIGURE 4.

OPEN AIR-CONDENSER.

HALF SIZE.



observations that much information can (at any rate at the commencement of the study of the subject) be gained.

We have not on this short paper referred to the medical value of systematic observations of atmospheric electricity, but we are informed by well known Doctors that they believe the electric state of the air has no small effect on the general health of the public.

It may be well to remark that any suitable *simple* recording arrangement would be exceedingly valuable if applied to a Thomson's improved ship's-compass. Such an arrangement working, say, in the captain's cabin, would give a complete record of the course of the ship during a voyage.

SOME METEOROLOGICAL OBSERVATIONS IN JAPAN.

BY THE

REV. DR. VEEDER.

*Read before the Asiatic Society of Japan,
on the 25th of April, 1877.*



The importance of Japan as a field for meteorological research can scarcely be over-rated. Consisting of a series of islands surrounded by the waters of the largest ocean on the globe, and possessing no interior regions more than fifty miles from the sea, its climate is essentially an oceanic one. Its oceanic character is, however, greatly modified by the vicinity of the largest continent on the globe, from which it is separated by distances varying from 100 miles—from the island of Kiushiu to the peninsula of Corea—to nearly 500 miles, from the province of Echigo across the Sea of Japan to the coast of Manchuria. The magnitude of these distances makes the insular position of Japan differ sufficiently from that of Great Britain to make a comparison of the effects of the vicinity of the continent upon the meteorological phenomena of these islands to the east of the united continents of Asia and Europe, and of those islands to the west of the same continent, worthy of the most careful study.

Such a comparative study would be made still more instructive by the fact that while the larger part of the

surface of the British Isles is comparatively level, the highest peaks scarcely exceeding 4,000 feet in height, and the mountain ranges being of no great extent, Japan is essentially a mountainous country, covered with long ranges of mountains varying in height from 4,000 feet to 7,000 feet, in which isolated peaks and vast masses are found from 10,000 feet to 12,365 feet in altitude. It is well known that elevated mountain ranges exert a great influence upon continental climates, and it is interesting to observe the extent in which even the oceanic climate of Japan is modified by her systems of mountains.

Another important feature of the meteorological position of Japan is her situation in the region of variable winds. These islands extend through 15° of latitude and 14° of longitude in that region, and form a series of land elevations reaching from the average north-eastern limits of the periodical (monsoon) winds, through a distance of 1,300 miles towards the north-east. From time to time the monsoons reach their shores and mountains, and occasionally the dreaded typhoons visit their south-eastern borders, and make their destructive power felt even in the capital. To this influence of the atmospheric currents should be added the exceedingly important influence of the great oceanic currents. The well-known warm Kuro Siwo current flowing parallel to the south-east coasts, and the cold currents coming down from the north into the sea of Japan on the west have much to do with the remarkable difference which are known to exist between the climates of the south-eastern and western coasts of Japan. And, in fine, if we take into account the islands and groups of islands north and south of the Japanese Empire, we have a grand chain of islands extending from the Kuriles near Kamtschatka on the north, through the Loochoos, Formosa and Philippines to the East Indies, so that could the vast belt of islands be dotted over with meteorological stations, connected by submarine telegraphs with each other and with similar stations on the Asiatic continent, knowledge of inestimable value to man, and unattainable elsewhere, could be acquired, shedding

clear light on the most difficult and important questions connected with the science of meteorology.

The worth of such a vast system of observations well carried out, has been shown in Great Britain and in the United States. In the latter country, during several years past simultaneous observations taken three times daily at seventy-five different stations, situated at from 50 to 3,000 miles apart, and reported at once by telegraph at Washington, have enabled the central office not only to forecast the weather, but in seventy-six cases out of every hundred, to give warning of impending storms, thus saving thousands of lives and millions of property. Isolated and individual observations have very little value as a means of forecasting weather. They may have, however, a high scientific value in such a country as Japan. And I take great pleasure in referring here to the extremely valuable and accurate series of observations made under the direction of Mr. H. B. Joyner, C.E., F R. G. S., at the Imperial Meteorological Observatory in Tôkiô. The experience of the director, the skill of his trained observers, and the perfection of the costly instruments employed, are a guarantee that the work is well done, and the result worthy of the deepest study.

I propose to lay before you some of the results of some of my own observations in this field, particularly those results which are represented graphically by the curves of barometric pressure, and of thermometric, psychrometric, and anemometric changes accompanying this paper.

The observations which I wish to discuss by the aid of these curves cover an interval of 124 days from March 1st, 1876, to July 3rd, 1876.

The instruments used were a standard Negretti and Zambra barometer with a column $\frac{1}{8}$ inch in diameter, a standard wet and dry bulb psychrometer, a Robinson anemometer, a weather vane and a rain gauge. The barometer cistern was 21 feet above the level of the sea.

Looking now at the curves themselves, and attending

to the description of them given in the margins, it will be perceived that :—

1.—The uppermost continuous curve gives the amount of cloudiness on a scale of from 0 to 10.

2.—The detached heavy vertical lines underneath this curve, with a dotted curve to the left of each, give the amount of rain on a scale of 2 centimeters to one inch of rain, while the dotted lines indicate the time and duration of the rainfall.

3.—The second continuous curve gives the barometric pressure reduced to 32° Far., and on a scale of 20 centimeters to one inch pressure.

4.—The third curve gives the force of aqueous vapour on the same scale as that of the barometric curve.

5.—The fourth curve gives the relative of humidity, or the degree of saturation on a scale of 1 centimeter to five per cent of saturation.

6.—The fifth curve indicates the changes of the thermometer on a scale of 1 centimeter to 5 degrees. The dotted lines indicate the means both of the three daily observations and of the maximum and minimum thermometers.

7.—The lowermost curve gives the daily totals of wind, on a scale 1 centimeter to 50 miles.

8.—Above the lower curve the detached straight lines drawn at different angles to points in the horizontal line show the velocity and direction of the wind at the times of the daily observations.

Noticing first the more obvious peculiarities of these curves, the barometric curve first claims our attention on account of the appearance of a certain regularity in its elevations and depressions, giving the form of mountainous waves with sharp high crests and deep troughs. Examining these with a view of ascertaining whether they indicate anything like a periodicity, or regularity in the oscillations of the barometer, we obtain the following results.

Counting only those elevations and depressions of the barometric column which exceed three-tenths of an inch,

we find that during 117 days the following numbers of each occurred at the intervals named.

Elevations indicated by the crests of the curve :—

1 at an interval of 3 days from the preceding one

| | | | | | | | |
|---|---|---|----|---|---|---|---|
| 2 | " | " | 4 | " | " | " | " |
| 3 | " | " | 5 | " | " | " | " |
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| 1 | " | " | 8 | " | " | " | " |
| 2 | " | " | 9 | " | " | " | " |
| 1 | " | " | 12 | " | " | " | " |
| 1 | " | " | 15 | " | " | " | " |

Making 17 elevations at average intervals of 6·8 days.

Depressions indicated by the troughs of the curve :—

2 at an interval of 4 days from the preceding depression.

| | | | | | | | |
|---|---|---|----|---|---|---|---|
| 4 | " | " | 5 | " | " | " | " |
| 5 | " | " | 6 | " | " | " | " |
| 2 | " | " | 8 | " | " | " | " |
| 1 | " | " | 12 | " | " | " | " |
| 1 | " | " | 13 | " | " | " | " |
| 1 | " | " | 14 | " | " | " | " |

Making 16 depressions at average intervals of 7 days.

While we can discover no exact periodicity in the oscillations here indicated we can clearly see a tendency to an approximate periodicity. The average of all the intervals is 6·9 days, and the separate intervals of 6 days are much the most numerous, while the longer intervals of 12, 13, 14, and 15 days show a tendency to break up into smaller intervals of from 6 to 7 days.

The thermometric curves show in many places remarkable correspondences with the barometric curve, giving in several instances precisely the same intervals between successive crests and troughs. And what is still more noticeable is the fact that the relation is in many cases an inverse one, that is, when the barometric curve rises the thermometric curve falls, the crests of the one corresponding with the troughs of the other. This is especially to be noticed in the curves for the 54 days from March 1st to April 24th. Here we see almost an exact opposition in the chief oscillatory motions during the first 21 days. On the

3rd of March and on the 21st, moderate depressions of the barometer correspond to equally moderate elevations of the thermometer, and on the 15th a great depression of the barometer is seen to be coincident in time with a great rise of the thermometer. Similar coincidences appear elsewhere, but they are not sufficiently numerous to justify the deduction of a general law that when the barometer falls the thermometer rises.

Turning now to the curves of the force of aqueous vapour, which are also approximately* curves of quantities of aqueous vapour, we discover in most parts a remarkable parallelism to the curves of temperature. At a few points, however, we see that the oscillations are in opposite directions, showing that the quantity of vapour did not invariably increase with the temperature.

A similar parallelism is seen between the curves of relative humidity and of temperature. The means of these curves as indicated by the dotted lines are in most case nearly parallel.

I may here observe that this parallelism between the curves of temperature and of vapour, and the manner in which they differ from the barometric curve, are in accordance with well known principles of physics and are what we should expect in an oceanic climate. As the temperature of the ocean and the most land rises in any region, the quantity of vapour drawn forth by the increasing heat also increases. But this vapour is only $\frac{5}{8}$ as heavy as dry air, and as it rises in increasing quantities into the upper strata it unites with the heat of the sun in increasing the volume of the atmosphere and causing an overflow into the surrounding drier and denser strata, and thus diminishes the weight of the atmosphere over the region. The parallelism of the curves of relative humidity and

* The formula expressing the relation between the weight of a given volume of aqueous vapour, and its tension and temperature taken in connection with Glaisher's Factors, shows that for open air temperatures between 32° and 80° with dew point temperatures from 0° to 40° below the open air temperatures, the approximations to strict proportionality between the tensions and the quantities of vapour range from 79 per cent. to 100 per cent. of strict proportionality.

temperature is not a necessary deduction from the results of experimental research in physical laboratories. That is, it does not follow that in the open air an increase of temperature will, as a rule, produce quantities of aqueous vapour, which will increase as rapidly as the capacity of the atmosphere for vapour increases with the increasing heat. In fact their curves show us in a striking manner that, in the warmer part of every day, as at 1½ P.M., the relative humidity falls in a remarkable manner, and at night it rises again, so that the daily oscillations of the curve are opposite to those of the thermometric curve. And yet upon the whole the means of the two curves rise and fall together. And this would appear to be a necessary part of that wise system by which the rain-cloud regions of the atmosphere become gradually filled to repletion with vapour and at length empty their beneficent showers upon the thirsty earth.

We turn now to the winds which may be viewed in many cases as potent secondary causes of the barometric, thermometric and other changes indicated by these curves. Strictly speaking all winds are the effects of differences of atmospheric pressure caused primarily by the sun's heat, yet when vast bodies of the atmosphere have once been set in motion from one part of the earth's surface to another, carrying with them warmth, moisture and diminished density, or the opposite qualities, they necessarily exert a controlling influence over the indications of the barometer, thermometer and psychrometer.

In order to discover the relation between the winds and the curves we are examining, we begin with counting the number and direction of the winds coincident with the chief depressions and elevations of the barometer. We find that there were seven southerly to three northerly winds coincident with low barometers, and seventeen northerly winds to five southerly winds coincident with high barometers. It thus appears that here, as in similar latitudes elsewhere, the barometric column as a general rule rises with north winds and falls with south winds.

It appears to me that the exceptions to this general

rule may be due to the fact that the winds in these cases were probably of a local and restricted character. The winds which affect the barometer are not regional winds confined to the lower strata of the atmosphere, but winds that come from great distances and imply motion of nearly the whole mass of the atmosphere. A warm south wind coming from the tropics laden with vapours lighter than dry air diminishes the weight of the atmosphere, and wherever it goes, there the barometric column falls. But a south wind may be merely a local sea breeze springing up at midday in consequence of the land becoming more heated than the adjacent waters. Of this examples occurred on May 3rd, May 26th, June 17th and 18th and other days on which south winds were coincident with high barometric readings. The mornings and evenings of these days were calm, while from 1 p.m. to 3 p.m. a strong south wind blew. And this wind must have been merely a sea breeze, having its starting point not far out at sea, and producing but little effect upon the great mass of the atmosphere. My observations in other parts of Japan afford confirmation of this view. In a journey along the north-west coast in July 1875 in company with one of the Hon. Secretaries of the Asiatic Society, I frequently noticed strong north or north-west afternoon winds, and on my return to Tōkiō I found on examining Mr. Knipping's valuable records of his meteorological observations, that during the same hours on the same days, winds were blowing at Tōkiō in the opposite directions, namely from the south-west.

As this is a point of great importance, I will here refer to the remarkable local or regional winds of California, which blow with great regularity from 9 A.M. till 3 P.M. almost every day from April to October. A careful observation of these winds during eleven years, has shown me that while their velocity is considerable and the distance to which they penetrate into the interior is great, their influence is confined to the lower strata of the air, and they affect the barometer very little. Observations on the summit of Mt. Tamalpais near San Francisco, 2,500 feet

high, show that these winds do not generally reach that height. As an illustration of their force I may mention that in the valleys north of the bay of San Francisco, trees are all inclined towards the north-east, and in the valleys south of the same bay the trees are inclined towards the south-east, showing that the winds passing in through the Golden Gate at San Francisco, as though the narrow part of a funnel, and over the lower hills south of the Golden Gate, spread out in both directions north-east and south-east, carrying with them refreshing coolness and welcome moisture far into the interior. And yet these are merely sea breezes, not even ruffling the serenity of the upper air, or diminishing its literal gravity.

In like manner the exceptional occurrence of northerly winds along with barometric depressions seems to be due to local causes such as a greater heating of the coast than of the interior in time of an elevated south wind which depresses the barometer, and at the same time permits a low surface current to set in from the north. But in the absence of all observations in the interior at the time of these exceptional north winds, we cannot form any sure judgment as to this origin.

We thus see the great importance of such a number of simultaneous observations at suitable points, as will make known the true character of a given wind, and tell us whether it is a local wind, a land or sea breeze or a movement of the great mass of the air. The barometer may lend its invaluable aid in answering this question. But we must also attentively observe the motions of the upper currents as indicated by the movements of the upper clouds.

Just here Japan becomes an exceedingly interesting field of research. Not only are clouds visible in her skies most of the time, but their differences of form, character and elevation are such as to give the observer almost unequalled facilities for studying the motions of the upper currents of the atmosphere. Such a phenomenon as two winds blowing in nearly opposite directions

at once, one in the upper regions of the atmosphere and the other in the lower is very common, and I have observed many instances of clouds moving at the same time in three different directions at three different heights. The importance of careful observations at suitable places and at different elevations may be inferred from the fact that the observers connected with the United States signal service are required to note and report by telegraph the direction and velocity of the motion of the upper clouds, these observations being of great use in determining the probable changes of the weather.

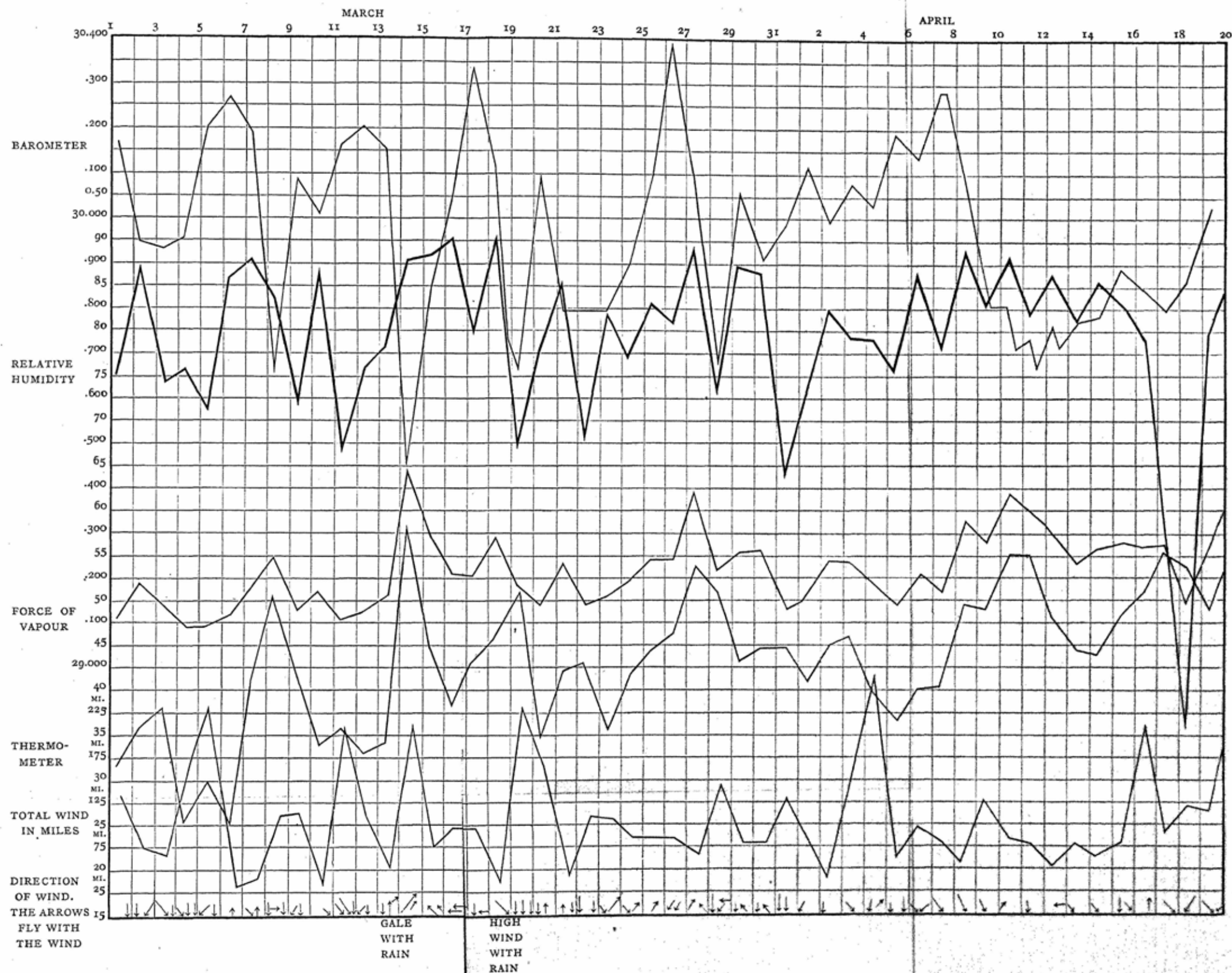
The curves of force of aqueous vapour and of relative humidity by which the state of the atmosphere with respect to moisture is indicated, present many points of interest. One of the most interesting of these occurs near the close of April. Here we have from the 21st to the 22nd an increase of temperature and of aqueous vapour together. The quantity of vapour does not, however, increase quite in the same proportion as the temperature; for we see a depression in one part of the curve of relative humidity, showing that the quantity of vapour did not keep pace with the increase of the capacity of the air for vapour. On the 27th a change occurs; the thermometric curve is seen to drop rapidly: but we observe that a heavy fall of rain has occurred on the 26th, as if the cup of the clouds had been filled to overflowing, and was now partially emptied. Evidently some cause has lowered the temperature and diminished the capacity of the air for aqueous vapour, thus producing condensation of the vapour and the precipitation of rain. But here we notice that immediately after the rainfall the pressure curve begins to rise rapidly, and at the same time the heat curve continues to drop, and with it both of the vapour curves, and during some days we have low thermometer with high barometer, accompanied by small differences between the maximum and minimum readings of the thermometers. If we look for the cause of these phenomena, we notice that the cold north winds have been at play since the rainfall ceased, producing their appropriate effects on all the curves. If

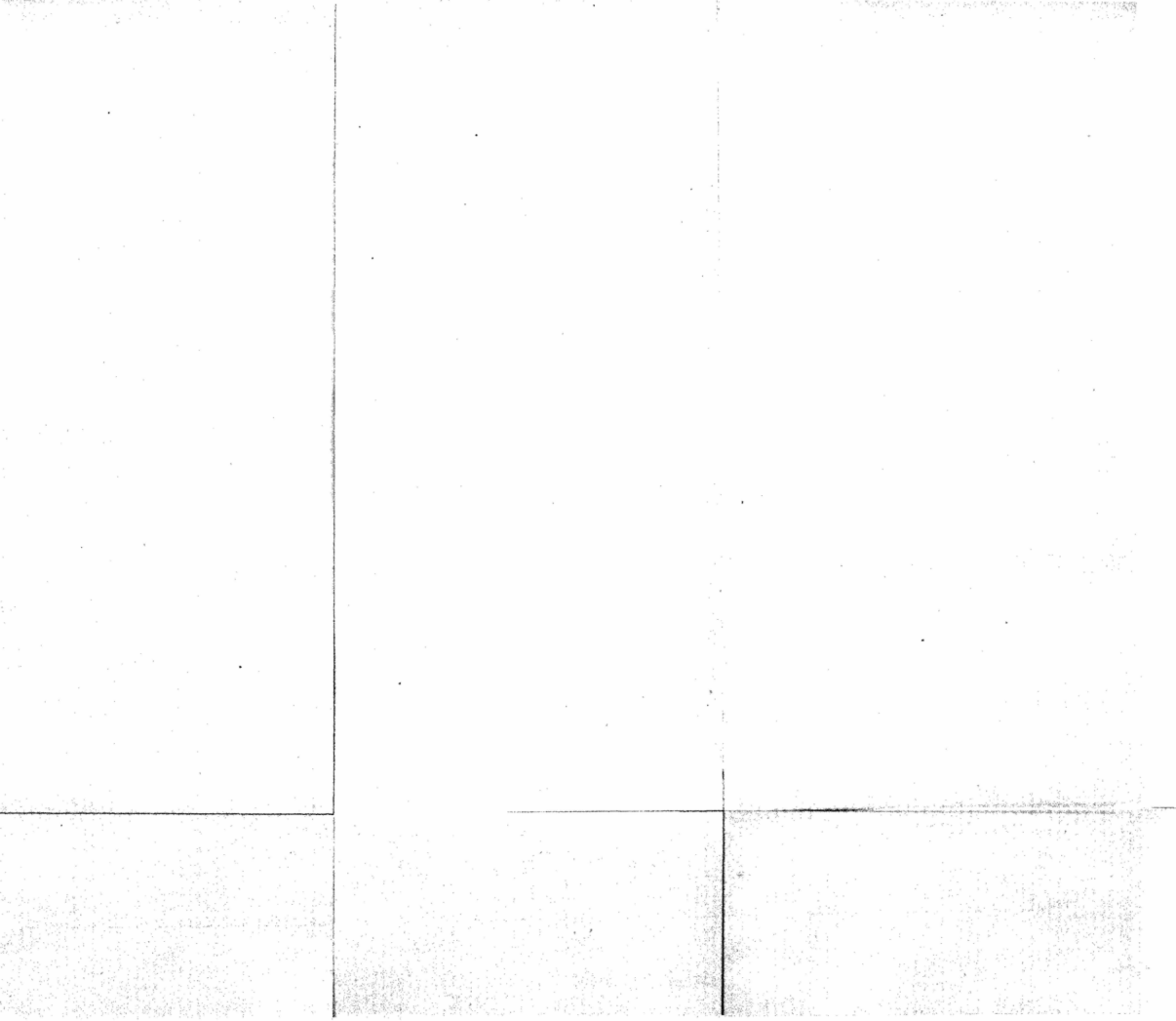
we seek to conjecture what caused the precipitation of rain before the north wind began to blow we may suppose that an upper current of cold north wind began to blow in the upper rain cloud region, condensing the vapour there collected, before the wind was felt below. This surmise finds support in what we observe on the 19th, 20th and 21st of May. Here we find that after a prolonged and gradual rise in the curve of aqueous vapour, beginning on the 29th of April, a sudden depression occurs connected as before with depressions of the curves of relative humidity and of temperature.

But we see also that a strong north wind began to blow at the beginning of the rain fall. May we not believe this cold wind to be the cause of this precipitation of rain and that it produced this effect by reducing the temperature of the lower rain-cloud region below the temperature of saturation, without at the same time affecting the barometer; and that the reason why it did not at first effect the barometer was because it was at first a local wind confined to the lower strata of the atmosphere? We find that after the rain was over the north wind continued to blow, while the barometer rose rapidly. This looks as if the air, being partially dried after the rain and therefore denser than before, was now, like an empty vessel into which water is poured, in a condition to receive accessions to its mass by the movement from above of dry cold air from the north. In this way what was at first a surface wind might have become a movement of the whole mass of the atmosphere. Another noticeable instance, in which a north wind precedes a rainfall at a time of low barometer and is followed by a depression in the curves, is seen on June 20th. It is noteworthy in this case that the rise of the barometer is very gradual after this date instead of being abrupt as in the preceding instances. And this is what we might expect, because we observe that no north winds of any strength blew during more than 10 or 12 days after June 20th. It is, however, by no means a general rule that rainfalls occur only in time of low barometer preceded or followed by north winds.

METEOROLOGICAL CURVES. MARCH 1ST TO APRIL 20TH 1876.

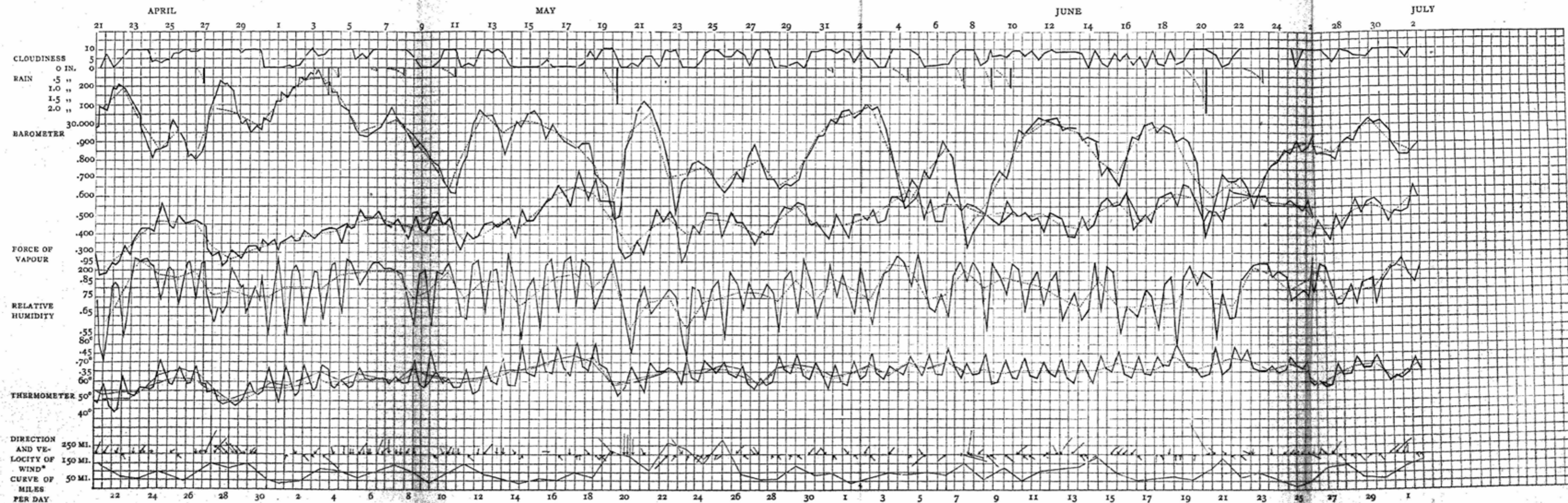
IMPERIAL UNIVERSITY OF TOKIO. LON. 139° 39' E. LAT. 35° 41' N.



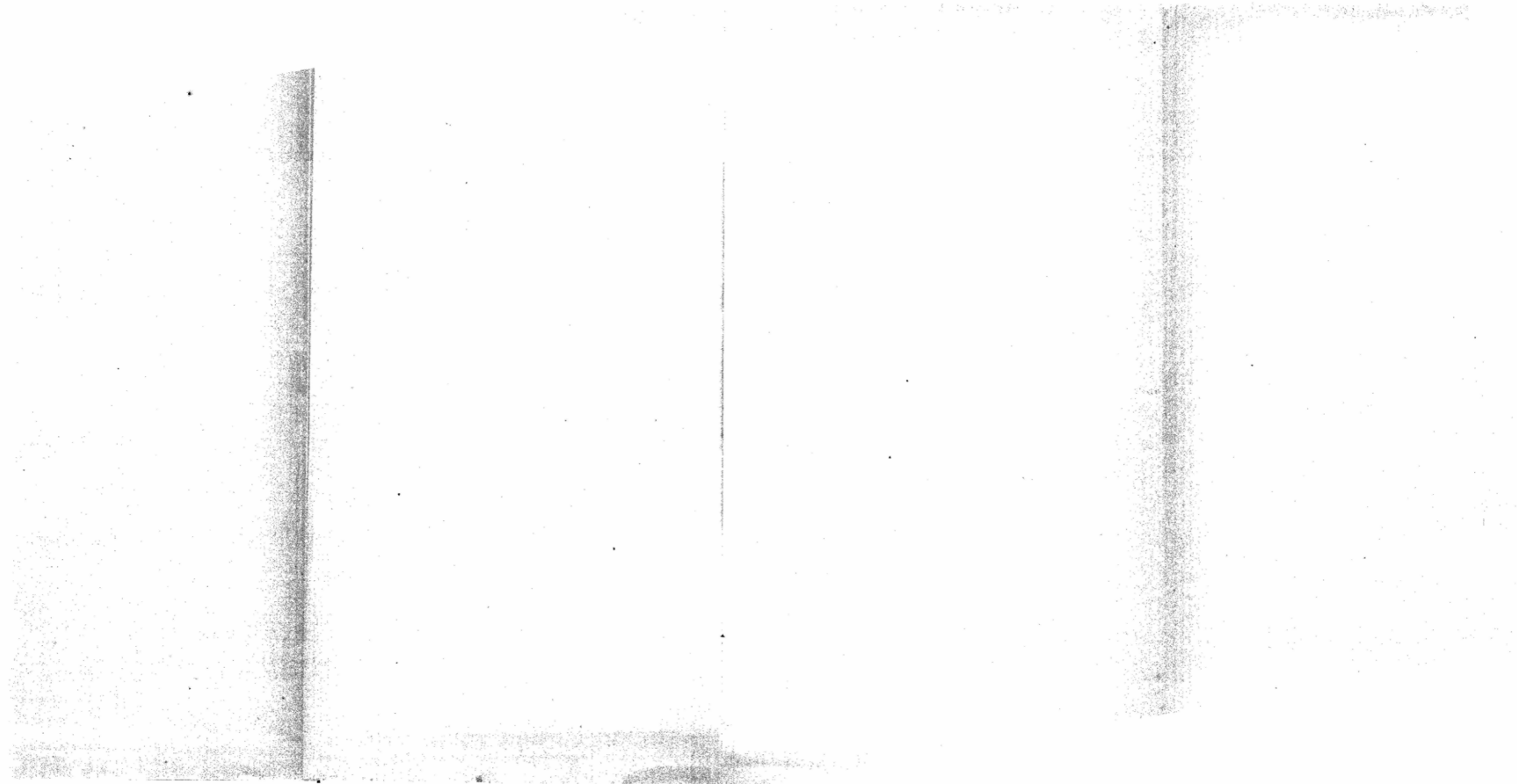


METEOROLOGICAL CURVES. APRIL 21ST TO JULY 2ND 1876.

FROM OBSERVATIONS AT 7.1 A.M., 1.26 P.M., & 10.1 P.M. TAKEN AT THE IMPERIAL UNIVERSITY OF TOKIO, JAPAN.



* The arrows fly with the wind. The length of one side of a square indicates a velocity of five miles an hour.



On the 2nd and 4th of May nearly $2\frac{1}{2}$ inches of rain fell at a time of high barometer. During the rainfall and after it, there was a steady rise of the curves of aqueous vapour and relative humidity, while during only one day was there a slight fall of the thermometer. During the rain a gentle north-east wind was followed by a strong south-east wind. Now it is to be noticed on the curve of aqueous vapour that this rainfall did not rob the lower strata of the atmosphere of their moisture. Is it not fair to conjecture that this rain, falling as it did from higher rain clouds, was due to condensation produced by high currents of wind from the north, currents not felt on the surface, and that these currents also caused the barometric column to maintain its height until the rain was nearly over? And when we consider that clouds at different elevations are frequently seen moving in almost opposite directions for hours in succession, we can easily understand how it could happen that a north wind could produce precipitation of higher clouds while a south wind was blowing on the surface below. Had there been an observer on the top of Fujiyama at the date last referred to, there is good reason for thinking that he might have recorded a north wind, while at its base a wind was blowing from the south.

I might extend these illustrations further by discussing the curves which I have drawn for March and April, 1875 and 1877. An examination of these would tend to confirm the views already expressed.

In conclusion I only add, that we see even in the light of these few observations by one observer in one locality that such observations have some value in confirming settled meteorological principles, and starting questions of great interest, and that therefore efforts should be made to multiply such observations in different parts of the Empire. And every friend of science will earnestly wish that the day may not be far distant when the Governments of Japan and China shall, in the interests of science, commerce and agriculture, establish and put into operation a grand system of simultaneous observations similar to those now in operation in some of the countries of the west.

ASIATIC SOCIETY OF JAPAN.

An ordinary meeting was held in the Society's Library, Tōkiō Dai Gakko, on the 25th April, 1877, Sir Harry S. Parkes, the President of the Society, in the chair.

The minutes of the last meeting having been read and approved, the Secretary announced that at last council meeting the following gentlemen were duly elected members of the Society:—Dr. Dönitz, President of the German Asiatic Society of Japan, Professor Chaplin of the Tōkiō Dai Gakko, Dr. Anderson, Dr. Willis, Lieut. James of the Kaigunsho, Mr. T. Tomita, and Rev. Julius Soper. A contribution from Mr. Joyner "On observations taken at the Imperial Meteorological Observatory in Tōkiō" was acknowledged: also it was agreed that such meetings as were held last week, called 'A meeting of the Physical Section,' should be held from time to time by order of the Council and be called extraordinary meetings.

The Library Committee reported receipt of the Proceedings of many Societies, and also of the Daily Bulletin of the Signal Service, U.S.A., for 1873.

The papers read were

1.—Some Meteorological Observations in Japan, by Rev. Dr. Veeder of the Tōkiō Dai Gakko.

2.—The Importance of a General System of Simultaneous Observations of Atmospheric Electricity, by Professors W. E. Ayrton and John Perry, of the Kōbu Dai Gakko.

After some discussion the President, in thanking the authors of the papers on behalf of the Society, said he need only refer to the Daily Bulletin of the Signal Service U.S.A., to show the importance of the work in which they were engaged. This bulletin contained three meteorological maps for each day, and the comparison of the columns of Probable and Actual Events showed what incalculable benefits to mankind had been already obtained through the labours of meteorologists. He earnestly hoped that the publication by the Society of the few labourers in the Meteorological field here would help to induce the Governments of China and Japan to establish a chain of Meteorological Observatories similar to what has been already done in America.

CHALYBEATE SPRING.

Osaka, Shiakudjo, 3rd February, 1877.

TO PROFESSOR AYRTON,

*The Corresponding Secretary of the
Asiatic Society.*

DEAR SIR,—In the month of December last year, I paid a visit to Arima, in order to determine the quantity of free Carbonic Acid in the hot chalybeate spring, about which I wrote you before. There are a few more springs in and around Arima, more or less important, which at the request of the Government I also examined. The situation of the hot spring and its baths are well known to visitors and by the description of Mr. Geerts and others. I may add, however, that the buildings with their bathing-places and all the surroundings are not proportionate to the value of the water. This is really to be regretted, and I am sure that if the accommodation at these baths were better many more visitors would avail themselves of their use.

The spring is situated about 350 metres above the level of the sea and takes its source in the town of Arima itself. During the six days I stayed there the water was always turbid, and when poured into a glass quickly deposited a brown-red, flocky powder of protoxide and sesquioxide of iron. No odour of sulphuretted hydrogen could be perceived, nor was I able to prove its presence in a large quantity of the water by means of lead-paper. According to the testimony of some Arima officials, who were very kind in assisting us in every way, the water is always clear during the summer season.

At the warmest place, about $\frac{1}{4}$ metre under the surface the temperature was 38.3° Cels. = 101° Fahr. The specific gravity at temp. of 23° Cels. = 73.4° Fahr., was 1.0118 (in August, 1875, I found at the same temp. 1.0115).

The turbid state of the water made me already suppose that no free carbonic acid was present, a supposition which the analysis afterwards confirmed.

The quantity of whole and half bound carbonic acid amounted to 2×0.0048 grm. CO_2 a litre.

It is therefore proved that the water did not contain free carbonic acid in December 1876, and even less carbonic acid was present than is necessary for dissolving the carbonates of iron and manganese, as bicarbonates, according to the analysis of the summer water.

Finally the specific gravity of the summer and winter waters proves that the whole amount of solid substances must be almost equal in both.

COLD SPRING OF ARIMA CALLED "TEPPU SUI."

This spring is found in the neighbourhood of Arima at the height of about 400 metres above the level of the sea. The water springs up in a square basin made of rough stones, having a superficial area of about 1 square metre. A wooden dwelling, like a small temple, built over the basin, prevents the rain from falling into it.

The temperature of the spring was found on the 14th December, 1876, to be 16.8° Cels. = 62.2° Fahr., while the thermometer in the open air indicated the temp. of 6° Cels. = 42.8° Fahr. Now and then some bubbles of gas were to be seen, which were dissolved afterwards by the water. According to the statements of the residents these bubbles are much more numerous in the summer time.

Properties.—The water is colourless and clear, but a few days after being quietly kept in an uncovered glass, it deposits a little red sediment of proto- and sesquioxide of iron. It reddens litmus-tincture and tastes sourish, not salty. The presence of a small quantity of sulphuretted hydrogen was proved both by the smell as well as by

means of lead-paper. It effervesces by heating, and after boiling for a long time a little sediment of carbonate of lime, etc., is deposited. The specific gravity is almost 1. The solid matters were determinated three times, viz. in the summer water of 1875, in the spring of 1876 and in the winter water of 1876, and amount on an average for 10 *litres*, after being dried at 120° Cels. to 1,362 grm., 0,03 grm. of which are lost through a moderate ignition. The residue gives with water an alkaline liquid. The quantitative analysis of the salts below mentioned is that of the summer water of 1875 and of the spring water of 1876, sent to the Osaka laboratory. The determination of the free, half and whole bound carbonic acid took place in December 1876 at the spring itself.

The solid matters contained in 10 *litres* of this water are as follows :

| | |
|---|-------------------|
| Bicarbonate of Soda..... | 1,210 grm. |
| Chloride of Sodium..... | 0,038 „ |
| Chloride of Potassium..... | 0,076 „ |
| Sulphate of Lime..... | 0,077 „ |
| Bicarbonate of Lime..... | 0,266 „ |
| Bicarbonate of Magnesia..... | 0,043 „ |
| Oxide of Aluminium..... | A small quantity. |
| Bicarbonate of Protoxide of Iron..... | 0,125 grm. |
| Bicarbonate of Protoxide of Manganese | 0,021 „ |
| Silicic acid and indissoluble Silicates | 0,065 „ |
| Organic matter | A small quantity. |

The free carbonic acid amounted at 16,8° Cels. = 62,2° Fahr., and the barometer of 730 m.m. in *one* volume of the water 0,689 volume of CO₂.

The amount of half and whole bound carbonic acid was found to be a little below the calculation drawn from the above-mentioned analysis.

I was told that foreign visitors like to take the waters as a cooling beverage.

I remain, dear Sir, with due respect,

Your obedient servant,

B. W. DWARS.

NOTES ON THE CRANIA OF THE BOTANS OF FORMOSA.

BY

STUART ELDRIDGE, M.D.

*Read before the Asiatic Society of Japan, on
the 14th March, 1877.*

—o—

The subject proper of my paper this evening is so uninteresting, save to the few who are engaged in the study of comparative ethnology, that in hope of somewhat redeeming its dry detail I have resolved to preface it with a short sketch of craniology in general, showing very briefly what this science is, what its objects are, and the methods of research employed. Craniology is one of numerous sciences, as physiology, general anatomy, archæology, and philology, which together form the great science of ethnology, or the study of the relation of individual men to races, of races to each other, and of both individuals and races to surrounding nature.

Although men are all formed upon the same general plan, yet there are no two individuals exactly alike either in internal or external structure, and this applies as well to the bony brain case as to other parts. Of any given number of skulls no two will be found perfectly to correspond, but an examination of many crania has shown that the forms of the head are susceptible of arrangement into a comparatively small number of groups, which will

agree in their general characteristics, however much they may differ from each other individually.

All skulls may be classed either as short-heads or long-heads, brachykephali, or dolichokephali, the short-heads including those which approach most closely to spherical form, while the long-heads are those deviating from the sphere to the greatest extent, both being considered with reference to the relation between their transverse and antero-posterior diameters. A mathematical rule has been laid down for the determination of the place of any given skull as long or short. Skulls of which the longest diameter from front to back bears a proportion to the greatest diameter from side to side of 100 to 80 or above, are classed as short or brachykephalic; those in which these proportions are as 100 to less than 80 are classed as long, or dolichokephalic. Now of the skulls of any well defined race so large a proportion will be found to belong to the same class, that all known races of men may be relegated to one or the other of these two classes of short-heads and long-heads. Thus, to the short-heads belong among others Slavs, Finns, Persians and Turks, the various Mongolian races, and some of the American tribes. To the long-heads belong most European races, as Gauls, Kelts, Britons and Teutons, the negro races, Australians and some other Pacific Islanders, classed as negritos, and some of the American peoples.

A comparison of short-heads and long-heads in their respective classes will show, however, that while they agree more or less closely as respects their proportionate diameters, they differ widely in other respects. Thus, compare the skull of an average Englishman with that of any Australian, both classed as long-heads. The difference in every other point is so great that it seems a mistake to classify them together. Notice more especially the retreating and low forehead and projecting muzzle of the Australian, the profile as well as the front view of the two are so unlike, that a child could scarcely mistake the one for the other. Similar differences, though of less extent, will be found on comparing the skulls of the short-head races.

Accordingly both brachykephali and dolichokephali are divided into sub-classes, the prominent jawed or prognathous, and straight jawed or orthognathous. Of these classes the Australian is a type of the prognathous and the average European of the orthognathous. For the determination of the extent of prognathism or the contrary, the so called facial angle is sometimes made use of. The examination is made by measuring the angle formed by two straight lines, one extending from the middle of the opening of the floor of the nose, the other drawn from the most prominent part of the forehead to the front of the upper jaw. The angle thus taken varies between 70 and 80 degrees, sometimes exceeding these limits. Other things being equal, the greater the facial angle the more intellectual the appearance of the man. The ancients in some of their most admired statues exaggerated the angle to nearly 100 degrees. But there are other and important points of difference in skulls, of which no note is taken in the classifications above mentioned, as, for instance, the height and contour of the superior surface, and the proportion between the facial part of the skull and the brain case proper. Compare the front view of the Mongolian, European and Australian skulls; notice the beautiful oval outline of the European; the low, depressed and square contour of the Australian; and the broad base and pointed top of the Mongolian. These differences in structure are equally visible when the skulls are viewed from below. From these distinctions arises another classification which is perhaps more generally useful than any other, viz, that of oval, pyramidal and prognathous, the latter class including only those skulls of which prognathism is the chief characteristic, as in the Australian or Negro. Now considering skulls as belonging to one of these three classes, the oval, pyramidal, and prognathous, it is found that the skull form bears a constant relation to the habits and surroundings of the race to which its possessor belonged. The prognathous skull is chiefly found among savage tribes, existing by the chase, or by the accidental yield of the earth, and, even where this form of skull exists in a

race the majority of whose crania belong to a higher type, it will generally be found that the individual or his ancestors not far back, have lived under circumstances of special poverty or degradation. The pyramidal is the typical form of skull among nomad races, herdsmen and plain dwellers, or northern tribes living by fishing and the reindeer. Certainly some of the possessors of pyramidal skulls are no longer nomads, but there is much evidence in favour of the theory that these tribes, now located and possessing a higher civilization, are descended from nomadic tribes who at some early day wandered over the great plains of Asia, as the Red Indians of America do to-day between the Mississippi river and the Rocky Mountains.

The oval form of skull, of which the European, or, as it was formerly termed, the Caucasian, is the best type, is separated from the preceding forms by the absence of their distinguishing characteristics, rather than by the possession of any very distinctive traits of its own. It is found among races possessing the highest civilization; men existing by systematic agriculture and the use of arts demanding intellectual culture.

There is no doubt that a change in the habits of any people will, in the course of ages, modify the prevailing cranial form of the race. Thus the Turks are no doubt descended from the same stock as the still nomadic pyramidal-skulled tribes of Central Asia, yet centuries of civilization and residence in one locality have modified their skull form into a close resemblance to the ordinary European type. On the other hand there is evidence that, reversing the circumstances, a retrogressive change may take place. Degrade a people into slavery, break up their civilization, transform them from city dwellers into nomads, and, in course of time, their skulls will exhibit a change toward prognathism or pyramidalism in proportion to the alteration or degradation of their circumstances.

In measuring or otherwise examining unknown forms of skull, the possibility of artificial distortion should always be born in mind. Many tribes, both ancient and modern, have

been in the habit of greatly modifying the form of their childrens' skulls by long continued pressure, sometimes with very curious results. This treatment, however, generally leaves such traces as to prevent the confounding of natural and artificial departures from the normal type.

But, in addition to the study of the proportions of the external parts of the skull, craniology includes the estimation of the volume of the contained brain, and, other things being equal, there is no doubt that the volume of the brain affords to a great extent a measure of intellectual capacity, though there are exceptions to this rule as to most others. The measurement of the brain case is taken either by filling the cranial cavity with shot of a uniform diameter, from the weight of which the cubic contents can easily be determined, or by taking a cast of the interior of the skull in plaster or wax. It is found by repeated observations of this character that a constant relation exists between the size of the brain and the status of the race from which the skull is derived.

Thus of 38 skulls of continental Europeans, English and Anglo-Americans, taken indiscriminately, the mean cubic contents were 93.5 inches.

Of 38 Chinese, Malay, Esquimaux and Finns (pyramidal form) the mean was 86 inches.

Of 164 skulls of North American Indians the mean was 84 inches.

Of 64 native Africans the mean was 83.7.

Of 8 Australians the mean was 75.

Individual cases exceed these limits widely.

Now I shall not attempt to determine with certainty the place of the Botan, according to any classification. To do so requires opportunity for extensive comparison, together with special experience and training for the work, which I have no claim to possess. My impression, however, is that the Botan race is a mixed one, probably a hybrid between a nigrito race and a Mongolian people. I think, comparing the Botan skull with other forms, that it approximates to the type of both these races without closely resembling either. All that I have attempted in the following note is such a

study and measurement of the skulls in my possession as shall furnish data to some expert craniologist, by which he may compare and locate the specimens. Measurements to be of value for purposes of comparison must include such and so many as almost to enable the student to erect from the data given a model of the cranium measured. It appears to me that the scheme of Huxley is the best yet brought forward for systematic measurement, and I have accordingly adopted it.

It is hardly necessary to remind residents of Japan that the Botans or Motans are one of the so-called aboriginal and savage tribes of southern Formosa; nor, that they were, within a short time, chastised by the Japanese for the murder of certain Liu Kiu castaways. Little is known of these people; all that I have been able to gather concerning them may be briefly summarized as follows:—

They are a race of rather fine physical development, of medium height, courageous, frank, and impressible like most savages; straight haired, complexion very various but always of a brown tint, never black; having some knowledge of agriculture, cultivating tobacco, root crops and rice; possessing, as domesticated animals, buffaloes, pigs, dogs and poultry; living under a patriarchal organization; fond of the chase; having some slight knowledge of certain arts, and a rude form of religion the cultus of which is, at least to some extent, in the hands of priestesses, who are highly revered.

The skulls upon which this paper is founded are four in number, of which only one is perfect, the other three having apparently served for experiments as to the hardness and sharpness of Japanese swords. I have numbered the skulls 1, 2, 3 and 4.*

No. 1 is perfect.

No. 2 has lost the left zygoma, a portion of the frontal, a portion of the temporal, the body of the ethmoid and nearly half of the facial bones.

No. 3 has lost about half of the frontal bone and is extensively fractured.

* The accompanying figures are in each case numbered as above.

No. 4 has had the upper margin of both parietals beaten in, and has lost all of the facial bones.

There are no signs of artificial distortion in any of the skulls.

In all the skulls, when held at arm's length, the malar bones are visible upon either side.

All are dolichocephalic.

No. 1 is slightly prognathous in form. Nos. 2 and 3 are decidedly orthognathous, and the prognathism of No. 1 seems due rather to alveolar projection only, than to general prognathism. In all the skulls the facial bones are largely developed, more especially the malars. This development of the face is more marked in Nos. 2 and 3 than in No. 1, and these skulls accordingly approach more closely to the pyramidal form, than does No. 1. In all, the upper edges of the zygomata are somewhat convex.

In all, the temporal ridges are strongly marked.

The orbits of Nos. 1 and 3 are somewhat square in outline, while in No. 2 the orbit is elliptical, the axis directed downward and outward. The various processes for attachment of ligaments and muscles are strongly developed in all. The tubercle for the attachment of the ligamentum nuchæ is in No. 1 exceedingly prominent. The mastoid processes are in all of about average development.

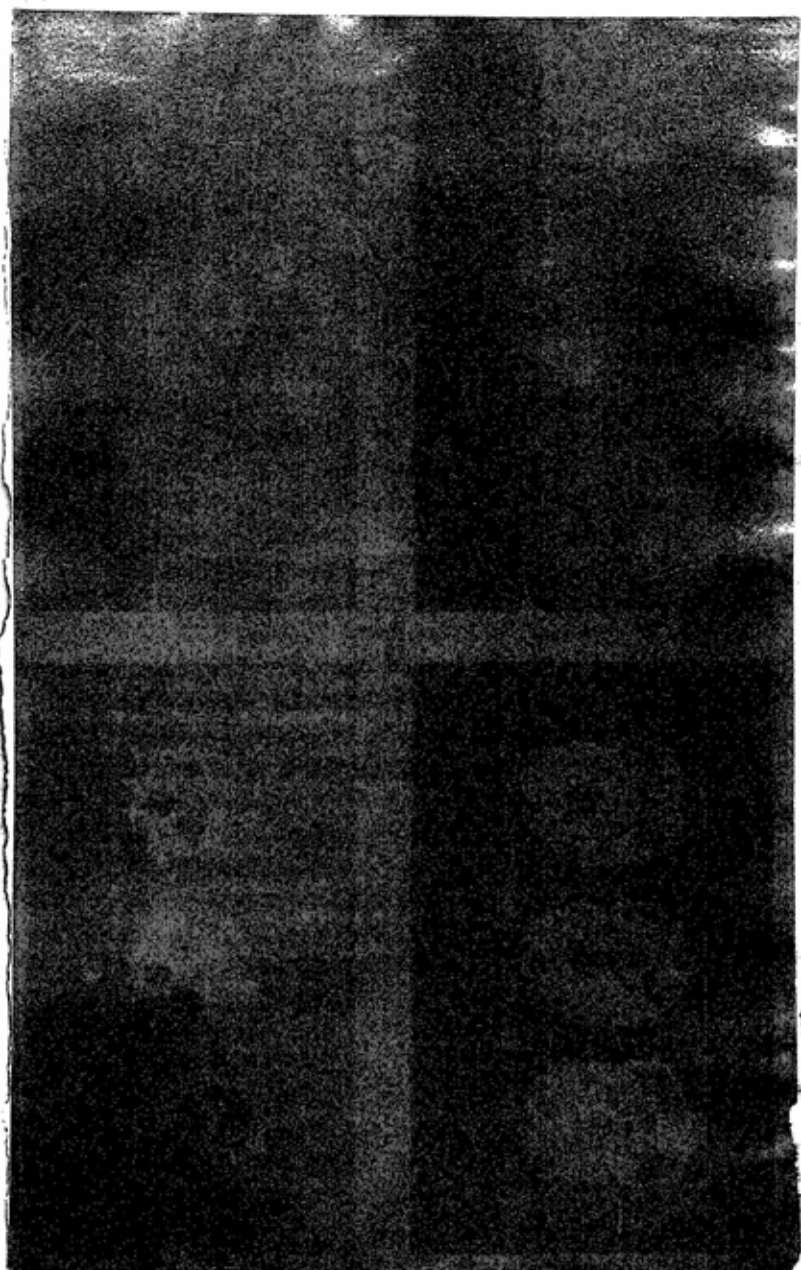
The axes of the glenoid fossæ of No. 1, if prolonged inward, would intersect at the anterior margins of the occipital foramen. Those of No. 2 would intersect about .50 of an inch in front of a like point. These of No. 3 and 4 would meet about .38 of an inch in front of the foramen occipitum.

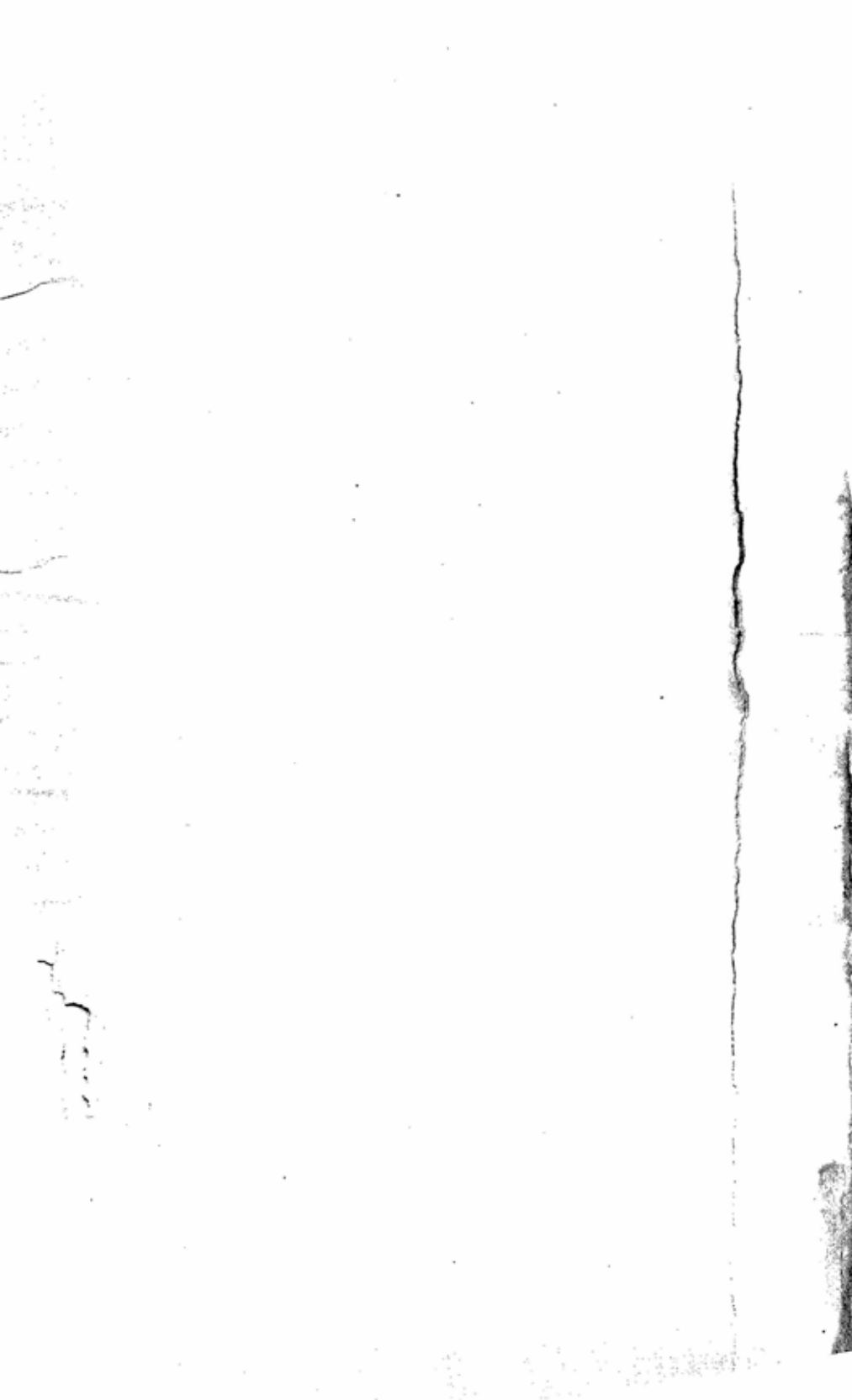
The occipital foramina of Nos. 1 and 4 are rather more oval than common, these of Nos. 2 and 3 are of about normal shape.

The external auditory foramina of all are oval. Those of No. 1 are of average size. Those of Nos. 2, 3 and 4 are exceedingly large as compared with European skulls.

The arch of the palate is in all, low and flat.

The external opening of the nose is large in all; in Nos. 1 and 2 the nasal arch is low and flattened; in No. 2 it is higher but by no means prominent.





The sutures in Nos. 1, 2 and 4 are distinct and un-united; in No. 3 all sutures, save the squamosal and a part of the lambdoidal, are obliterated.

The frontal sinuses are small in all, while in all the ethmoidal ridge of the frontal is large and prominent.

The following measurements are taken as correctly as possible in hundredths of an inch:—

| | 1 | 2 | 3 | 4 |
|---|------|------|------|------|
| 1. Extreme length | 700 | 695 | 715 | 702 |
| 2. Extreme breadth..... | 545 | 535 | 538 | 528 |
| 3. Height from posterior extremity of basi-cranial axis to junction of the coronal and sagittal sutures | 530 | 527 | 552 | 526 |
| 4. Longitudinal arc of the parietals..... | 525 | 530 | 500 | 530 |
| 5. Transverse arc from one auditory foramen to the other... | 1275 | 1275 | 1280 | 1300 |
| 6. Width of frontals immediately behind external orbital processes (least frontal measurement,) | 370 | * | 343 | 362 |
| 7. Width of frontals on temporal ridges just above the external orbital processes.. | 383 | * | 367 | 367 |
| 8. Greatest frontal width where the temporal ridges cut the coronal suture. | 442 | 420 | * | 410 |
| 9. The longitudinal arc of the frontal. | 500 | 475 | * | 464 |
| 10. The longitudinal arc of the occipital..... | 425 | 420 | 450 | 520 |
| 11. Transverse arc of the occipital, from the junction of the lambdoidal suture and its additamentum on one side horizontally over the occiput to the other side..... | 515 | 490 | 525 | 500 |

| | 1 | 2 | 3 | 4 |
|---|-----|-----|-----|-----|
| 12. The greatest transverse diameter of the occipital bone from one occipito-mastoid suture to the other. | 416 | 392 | 422 | 430 |
| 13. Between the points of the alispheno-squamosal sutures, which are cut by the transverse ridge on the alisphenoid. | 315 | 364 | 350 | 305 |
| 14. Between the most distant points of the outer surfaces of the mastoid processes.. | 472 | 470 | 502 | 520 |
| 15. Between the most distant points of the outer edges of the occipital condyles. | 197 | 195 | 195 | 191 |
| 16. Transverse diameter of the occipital foramen. | 113 | 127 | 122 | 115 |
| 17. Length of the occipital foramen. | 147 | 135 | 132 | 142 |
| 18. Length of zygomata from anterior edge of auditory foramina to anterior edge of maxillo-jugal sutures..... | 400 | 418 | 410 | * |
| 19. Between the outer edges of glenoidal fossæ..... | 487 | 493 | 477 | 450 |
| 20. The greatest breadth of palate taken between inner edges of alveoli..... | 151 | 160 | 162 | * |
| 21. The greatest length of palatine plate of palate bone. | 60 | 72 | † | * |
| 22. Between the outer sides, and posterior edges of the bases of the external pterygoid processes..... | 187 | 204 | 213 | 175 |
| 23. Between the outer edges of the foramina ovalia..... | 220 | 249 | 225 | 220 |

| | 1 | 2 | 3 | 4 |
|--|-----|-----|-----|-----|
| 24. Between the posterior end of the alispheno-squamosal sutures and the outer sides of spinous processes | 290 | 310 | 285 | 267 |
| 25. Between the centres of the styloid foramina..... | 330 | 332 | 326 | 332 |
| 26. Between the inner edges of the precondyloid foramina | 137 | 130 | 135 | 123 |
| 27. From the lower end of the basicranial axis to the anterior alveolar margin of the premaxilla | 387 | 370 | 387 | * |
| 28. From the lower end of the basicranial axis to the posterior end of the spine of the palate..... | 175 | 167 | 160 | * |
| 29. From the posterior end of the spine of the palate to anterior alveolar margin of the premaxilla. | 210 | 200 | 221 | * |
| 30. Vertical height of face from fronto-nasal suture to alveolar margin. | 294 | 245 | 270 | * |
| 31. Vertical height of the orbital aperture..... | 150 | 138 | 140 | * |
| 32. Anterior interlachrymal diameter from point of junction of the frontal, lachrymal and maxillary on the one side to that on the other. | 83 | 85 | 86 | * |
| 33. Posterior interlachrymal diameter between the junctions of the ethmoid, lachrymal and frontal..... | 95 | * | 91 | * |
| 34. Between the posterior ends of the ethmo-maxillary sutures | 152 | * | 145 | * |

| | 1 | 2 | 3 | 4 |
|--|-----|-----|-----|-----|
| 35. From the margin of the orbit to the alveolar margin between first and second molars. | 176 | 156 | 167 | * |
| 36. Between the centres of sub-orbital foramina..... | 213 | * | 213 | * |
| 37. Between the outer edges of the optic foramina in orbits..... | 122 | * | 120 | 116 |
| 38. Extreme transverse distance of the outer surfaces of the zygomata..... | 520 | * | 536 | * |
| 39. Extreme distance between external alveolar margins... | 247 | 255 | 260 | * |
| 40. Width of the external nasal aperture..... | 108 | 100 | 110 | * |
| 41. Length of a line drawn from the anterior edge of the premaxilla through the posterior edge of occipital foramen, and cut by a perpendicular tangent to occipital bone..... | 787 | 765 | 775 | * |
| 42. Length of so much of this line as lies in front of a point cut by a perpendicular to the centre of the occipital foramen..... | 460 | 440 | 450 | * |
| 43. Length of above line behind this point..... | 327 | 325 | 325 | — |
| 44. Length of basicranial axis from anterior margin of occipital foramen to pre-spheno-ethmoidal suture within skull..... | 248 | 232 | 275 | 250 |
| 45. Least breadth of basicranial axis between apices of petrosals. | 80 | 100 | 85 | 90 |

| | 1 | 2 | 3 | 4 |
|--|-------|-------|-------|-------|
| 46. Length of cribriform plate of ethmoid..... | 83 | * | 110 | 110 |
| 47. Between outer edges of optic foramina within skull..... | 91 | 102 | 86 | 80 |
| 48. Length of posterior superior edges of ossa petrosa. | 248 | 225 | 245 | 225 |
| 49. Between internal auditory meatus..... | 228 | 220 | 215 | 200 |
| 50. Extreme distance of outer walls of posterior nares. | 115 | * | 120 | * |
| 51. Height of the arch of posterior nares. | 110 | * | 117 | * |
| 52. Greatest perpendicular height of nasal passage from cri- briform plate to upper sur- face of palate, measured from floor of nares a little to one side of ridge. | 171 | * | 210 | * |
| 53. Projection of inner contour of the frontal forward, beyond the level of a perpendicular to anterior end of cribriform plate. | 55 | * | 45 | * |
| 54. Projection of the inner contour of the occipital backward beyond the torcular Hero- phili. | 61 | 85 | 50 | 70 |
| 55. The capacity of the cranium and volume of the brain as determined by the use of shot of uniform diameter, in cubic inches. | 84.82 | 91.34 | 83.43 | 75.90 |
| 56. Indices of relation of width to length (Kephalic Index).... | .78 | .77 | .75 | .75 |
| 57. Facial angles. | 76.3 | 80.5 | 84.3 | * |

* Skull so broken as to render this measurement impossible.

† Suture obliterated.

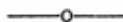
Note.—The paper when read was illustrated by drawings of the skulls of various races including those of the Botans, as well as by type specimens of the skulls themselves.

ON PRIMITIVE MUSIC; ESPECIALLY THAT OF JAPAN.

BY

THE REV. DR. SYLE.

*Read before the Asiatic Society of Japan, on the
13th June, 1877.*



Among the records of Antiquity, we read of such wonderful effects ascribed to the power of music, that one is naturally led to ask, What was the character of that early system—if system it was—which possessed such potency? Was it Vocal only? or, Instrumental? or, both? Did it consist of Melody alone? or, had it also Harmony? Had it a notation, so that it could be read and learned by book? or, was it entirely traditional—learned by ear; remembered as nearly as might be; and transmitted continuously in the same manner? These questions present so large a field of enquiry that we cannot attempt, in the present paper, to do more than sketch the outline of a method whereby our study of the subject may be conducted with more prospect of valuable results than any heretofore attained.

What we should aim at is the ascertainment, if possible, of that style of music which prevailed among the early tribes of mankind, or the supposition of their having had a common origin. Whatever kind of music they had prior to, and at the time of, their dispersion—that they must have carried with them in their several wanderings; and if this music is still to be found anywhere, it must be

among the tribes which we call aboriginal—those vestiges of the earliest migrations, prior to which we find no traces of anything that can be called historic. Now, where shall we look for these? Where, but in the extremities of the earth? In those remote and inaccessible regions to which the primitive peoples have been driven by the successive migrations of mankind, all issuing from Central Asia, and spreading themselves, wave after wave, outward in all directions.

Accordingly it is in such localities as North Wales, the Hebrides, the West of Ireland, the Basque Provinces, Finland, Southern Arabia, Ceylon, Siam and South-western China, Corea and Japan, that we should expect to find what we are seeking for—if, indeed it is to be found anywhere, after the lapse of so many ages, and in the midst of so great a diversity of circumstances.

Our present amount of musical knowledge concerning the earliest occupants of the African and American continents does not warrant the attempt to include them in the comparison we propose to make; though it may be remarked, in passing, that whatever facts we have observed, or gathered, concerning the music of the Red Indians of North America, of the Pacific Islanders, and of the African tribes, goes to confirm the conclusions arrived at by considering the data furnished by the better known countries of Asia and Europe which have been already mentioned.

One of those conclusions is that in the primitive music of all those far removed and widely differing peoples there is found a marked peculiarity arising from the use of only six tones in the compass of what we call the octave. In the Chinese, Siamese, Hindoo and Arabic Music there is found this characteristic as well as in the Scotch, Irish, Welsh, Basque and Finnish. A partial exception (to be explained hereafter) should be made in the case of *Northern* China, with which Corea† and Japan are to be classed as having derived their music from that region.

* The performances of the band of the Corean Ambassador, on his visit to Yedo in June 1876, sufficed to establish the identity of

The explanation of this peculiarity would involve us in a discussion of the nature and derivation of the gamut. In what sense, and on what ground is our diatonic scale to be considered *natural*? Is it to be gathered from the song of birds? Not easily. Is it deduced from the vibrations of strings, divided by regular measurements? In part; not altogether. Does it arise from the harmonics produced by the striking of a bell? Not with any directness. Fuller answers to these questions are heard from Germany, Italy and England in the Treatises of Helmholtz, Baserna and Sir Frederick Gore-Ouseley; but the matter has been of late thoroughly re-opened by some who claim that our present scale is all wrong, and that we shall never have music worth cultivating until fourteen intervals, instead of twelve, have room made for them in our accustomed octave: this is to furnish the true music of the Future. We are engaged, however, at the present time, is considering the music of the Past; and one of the difficulties we find in appreciating it, and in making a comparison between specimens gathered from different places, is that it refuses to be expressed exactly in our notation, or be performed accurately on any of our keyed instruments. It is owing to this fact, perhaps, that much discussion has arisen as to whether Oriental music is in the major or the minor mode; whereas (if our suggestion is correct) it is in neither; but in a kind of half-minor, having a peculiar distribution of the semi-tones; or, more correctly speaking, having intervals which are neither full tones nor true half-tones. It may seem presumptuous to hazard this statement, after such an authority as Fétis (*Histoire Générale de la musique*) has said—"La musique Chinoise n'a qu'un seul mode, lequel est majeur," (Vol. I. p. 60): and after another well-esteemed authority, Dr. Rimbault, has written—"Mr. Macgregor's *Oriental Music* has helped to confirm our opinion that the *major* scale is more common in ancient music than the *minor*."

the Corean with Chinese Music, while it also shewed the skill and energy of the performers. They were good specimens of their class.

The universally prevalent opinion of the minor scale being the basis of the music of ancient nations is certainly erroneous." (Art: *Leisure Hour* for April, 1875, p. 214). We adhere, however, to our impression, and would venture the following explanation. When an amateur on hearing an oriental melody attempts to write it down, what notation does he use? Certainly the current European notation, making it represent *as nearly as possible* the sounds that fall upon his ear, though he is distinctly conscious that there is something out of tune somewhere. He notes down, we will suppose, an air in E flat (the most convenient key for the purpose) and he feels that his D and G are both of them a trifle too sharp, but not enough to justify him in writing D flat and G flat; so he just goes on and writes D natural and G natural, and when he has written it so, so he plays it, and he says to himself that he has "caught the tune *pretty nearly*." Of course, what is thus written in the major mode, will reappear in the major mode when played; and the musical *savant* in Europe who studies anxiously over these transcriptions will be led to such conclusions as those above expressed. By falling back upon the Pythagorean scale (as suggested in the text) a much nearer approximation would be made, in my opinion. Even the Gregorian Tones (so-called) we suppose to be virtually misrepresented by their being written according to our present scale. And hence arises one of the great drawbacks to the effectiveness of all this music: it lacks the vigor and sprightliness and majesty of our major mode; it lacks also the wailing tenderness and plaintive sadness of our minor mode; and it loses the great effects which arise from the alternations of the two. Add to this, that all is in common time, that no triple measures are used, and the well-known monotonous effect is accounted for. In point of effectiveness, therefore, it will bear no comparison with our modern music, from which it is distinguished also by the absence of harmony, except in the very occasional use of a fundamental note on certain stringed instruments, and of some

meagre harmonies—a third, more frequently a bad fourth on the *Sung* (Chinese) or *Sho* (Japanese). On one occasion I heard, at Shanghai, two performers simultaneously carry through the same air on two guitars, tuned at a distance of a fourth apart—one we will say on C and the other on F. The effect was bad, but not so bad as it would have been on one of our instruments, because of the difference of scale. These three instruments here exhibited—a Wood-harmonicon, a Series of Steel Bars and a Set of Tuning Reeds enclosed in a small cylinder—will shew the diversity of scale, and the difficulty of determining what the Japanese gamut may be, and also whether or not they have more scales than one.

My obliging friend, the Rev. Dr. Veeder, has taken the pains of testing by the Siren what are the ratios of vibration between the twelve notes of a standard series of bamboo pipes, kindly lent me by Mr. Machida, one of the Members of our Society, and believed to be of great antiquity (some 500 years old) and to represent the Japanese chromatic scale.

I should despair of making the delicate difference of these scales intelligible by any explanations of my own on this occasion, and must therefore leave them for private study when printed; meanwhile tendering to Dr. Veeder our best thanks on behalf of all lovers of the Science of Harmony, and giving to him and his assistants the entire credit of the great pains they have taken in verifying the vibrations and tabulating the interesting results.

We have to acknowledge another contribution from two Japanese students of the Imperial College of Engineering, under the instruction of Professor Ayrtton. To our great regret, it is only a fragment, and owing to the continued illness of one of the students, will probably remain so; but the results, so far as reached, are both interesting and valuable: interesting as the work of a native of one of those lands where Primitive Music still lingers; and valuable, as testifying to the prevalence of the six-tone scale, and to the extreme difficulty of certifying ourselves

of the data upon which satisfactory conclusions can be based.

As in the case of Dr. Veeder's contribution, so with this—the entire credit for the love-labor bestowed on the subject must be given to Professor Ayrton and his promising pupils.

It will be observed that among the scales compared in Dr. Veeder's Tables is the Pythagorean—and this, we are inclined to believe, is the magic key that unlocks our difficulty. Who so likely to give us the *facts* on such a subject as the Sage of Crotona—a man who thought so much and travelled so far and observed so carefully; and who, moreover, esteemed this particular subject so highly that his ideas of astronomy were attuned to the Music of the Spheres, and his principles of Government were arranged as elements of Harmony.† His contemporary Heraclitus says of him that he had made more inquiries than any other man; and that he had acquired wisdom, knowledge and “mischievous refinement”—which last remark is apt to be repeated in our own day concerning those who occupy themselves with measuring musical vibrations, and giving to their value a logarithmic expression.

Be that as it may; a thinker who was the disciple of Thales and Anaximander, and whose system was recognized as “scientific doctrine” by Aristotle—such a one was not likely to give us anything but what he had learned with care and verified with patience; and therefore it is that we consider he has given us the true primitive musical scale; the one used at first unconsciously perhaps; but as soon as it became the subject of mathe-

† The ideas of Confucius on this subject and his tribute to the importance and the profound Mysteriousness of Music, furnish an interesting parallel, and are worthy of more than a passing notice. Speaking of the three strings of an ancient form of the *King* (a kind of guitar) he named one The Ruler, one The Minister and one The People, and added that whoever could harmonize these three could rule the Empire. It ought not to be forgotten, also, that Plato in his Republic makes Socrates sum up all forms of culture in these two—Music and Gymnastics—in which case, of course, *Music* includes all that belongs to the Sacred Nine; but it is significant that they should all be named *Muses*.

matical scrutiny, accepted and adhered to by the cultured musicians of classic times ; and now corroborated, or rather exemplified by what is still found among those remote and widely scattered tribes of mankind who have retained what is most primitive in the world of music.

A few remarks must suffice for the application of our theory to the case of Japan. Corea might be added, and both be referred to China, whence, without any question, their musical system was derived. Among the Chinese then we find the old six-tone scale, as above indicated ; but we find *also* an eight-tone scale ; and the former is called the Southern, while the latter bears the name of Northern—which is the very reverse of what we should have expected. In the ruder regions of the North we should be apt to look for the simpler forms of song, while to the softer South we might expect more perfect and more finished melodies ; but we find this order reversed.

And here we reach the point where our subject touches Ethnology, and contributes (as Fétis has well shewn) to solve some of its problems, especially those connected with the distribution of the Aryan and Turanian races. The apparently anomalous case of China will receive some elucidation, if we bear in mind that the point at which a conquering race has entered a country may almost always be determined by taking the region into which the aborigines have been driven and drawing from it, as from a base, a perpendicular in the opposite direction—that will indicate the line of progress of the invading hordes. A single glance at the map will show a line drawn from Wales will point to Kent ; one from the Ainō country to Kiushiu, etc., etc. Now in the case of China, the *Miaou-tse*—the true aborigines—are found in the extreme southern parts of Kwang-tong and Kwang-si, especially the latter ; and accordingly, it is here that the simpler, ruder, six-tone scale of music is found, while the invading Mongols brought with them the more complete gamut, which fills up the two gaps and gives us an eight-tone scale,—a true octave. Arguing from the nature of the case, we should expect that this latter would not

supersede what had already overspread the country, but would be found there, as an addition—an hypothesis which quite corresponds with the facts of the case.

And now we must content ourselves on the present occasion, with alluding to only one more topic—namely, the early *subjects* of music; its close connection with the dance at festivities, and with wailing and processions of mourners at funeral ceremonies.

With regard to the former, no one can watch the sports of children without seeing that in the infancy of our race, the exuberance of animal spirits must have found vent in the song-dance; and also (to take the opposite extreme) no one, with the habit of reflecting on such subjects, can have tried to analyze the movements of a modern ball-room (where conventionalism and artificiality reach their highest point) without seeing the vestiges of what was once the war-dance and the love-chase: this is the only theory we know which makes intelligible the mazy movements of the reel, the waltz, the contre-danse and the quadrille; and the music is adapted to the movement—highly rhythmical, lively or languid, marked and energetic.

So, on the other hand: the sorrowful wail of the mourner at funerals, the wild unmeasured ululations such as are still heard (after having been traditionally handed down for centuries), when the Jews recite annually the Lamentations of Jeremiah outside the walls of Jerusalem,—these strains have as their characteristics, the absence of rhythm, the irregular interruptions of voice after voice, without regard to tune or time or key, all blending, in combinations more or less discordant, and yet preserving some kind of unity, as evidenced by their arriving at a simultaneous close.† We ourselves have listened at the house of a Japanese amateur to

† One very noteworthy peculiarity in the performance of Buddhist chants is that, while all the performers use the same words and follow the same cadences (which greatly resemble the Ambrosian and Early Gregorian Tones), yet each singer chants the strain in the key which best suits the pitch of his own voice; in this, resembling the manner in which, among ourselves, a whole congregation is accustomed to read the Psalter.

a performance of this kind, which lasted about twenty minutes, and we were perplexed during its continuance as to what its meaning might be. At the conclusion, our friend enlightened us by explaining that it expressed the wailings of a company of women lamenting over a recent battle-field. Had this idea been suggested at the commencement of the concert, we should have listened with better appreciation, and might have found the music quite as descriptive and suggestive as some of the compositions in which the mannerisms even of our great masters overwhelm all fitness, *e. g.* certain portions of "Sampson," especially those given to Delilah.

But the crowning glory of Japanese music is that which is performed by the Imperial Band, and which we have had the opportunity of hearing on two occasions—at the Opening of the Railroad and at the Inauguration of the University—both of which were honored with the Mikado's personal presence. Without some suggestive friend at hand to indicate the intention of the composition I think no one—no stranger, we mean—could form any definite opinion of its merits. The only thought that suggested itself was that an imitation of the *Cæolean* harp was intended, or perhaps, the sighing of the winds through the trees of the forest; and our impression is that if the specimen which has been given us, by the labors of Dr. Muller,§ were performed with suitable instruments, and with a reference to this leading idea, we should find something to admire in these performances, and not hastily dismiss them, as some are apt to do, with the dictum that they are utterly barbarous and unimprovable.

If there is a universal language in the world, it is Music; and according to our views, its development may be seen in three successive stages, which we might call its Dialects.—First, in the imperfect utterances of the three or four or six-tone scale—simple, expressive yet inadequate; next in the ill-defined yet fuller utterance of

§ See Journal of the German Asiatic Society for March, 1876, p. 31.

| NATURAL GAMUT WITH FLATS & SHARPS. | PYTHAGOREAN SCALE. | TEMPERED GAMUT WITH FLATS & SHARPS. | KOTO WITH THIRTEEN STRINGS. | TWELVE PITCH-PIPES SAID TO BE VERY OLD, AND PROBABLY BROUGHT FROM CHINA, USED IN TUNING. INTERVALS IRREGULAR. | KOTO TUNED ACCORDING TO THE ASTRONOMICAL METHODS DESCRIBED BY DR. MÜLLER | KEY OF C MINOR, JUST INTONATION. | KOTO TUNED ACCORDING TO THE MATHEMATICAL METHOD DESCRIBED BY DR. MÜLLER. | KOTO TUNED IN BANJIKI. | KOTO TUNED IN SŌCHŌ |
|--|-----------------------|---|---|---|---|--|---|--|---|
| D ₄ 1210 vib per sec. | | | | | | D | F [#] | E | G ₃ |
| D ₃ ^b 1152 $\frac{25}{24}$ | | | Eighth String. Octave above the third string. The ninth is an Octave above the Fourth &c. &c. | Jōmu 1140 vib. per. sec. | | | Eighth String. | Eighth String. | Eighth String. |
| C ₃ [#] 1122.6 $\frac{645}{625}$ $\frac{9}{8}$ $\frac{9}{8}$ | | | | Shinsen 1084 | Kiu. 2 | C | E | B | $\frac{32}{27}$ |
| C ₄ 1076.8 $\frac{25}{24}$ | | $\frac{16}{15}$ $\frac{256}{243}$ | Seventh String. | Banjiki 1017 | | | Seventh String. | Seventh String. | Banjiki 1017 |
| B ₄ 1009.5 | | | | | | $\frac{10}{9}$ | | | Seventh String. |
| B ₄ ^b 968.4 $\frac{25}{24}$ | | | $\frac{32}{27} = \frac{6}{5} \div \frac{81}{80}$ | | | B _b | $\frac{32}{27}$ | $\frac{32}{27}$ | |
| A ₄ [#] 935.4 $\frac{648}{625}$ $\frac{9}{8}$ $\frac{9}{8}$ | | | | Rankio 943 | Tchi The same as Rankio the sixth pipe above Tashikicho | | | | $\frac{9}{8}$ |
| A ₄ 898 $\frac{25}{24}$ | | | Sixth String. | Wōshō 893.9 | | $\frac{9}{8}$ | C [#] | G [#] | Wōshō 894 |
| A _b 862.2 $\frac{25}{24}$ $\frac{9}{8}$ | | | | Fusho 858 | | A _b | Sixth String. | Sixth String. | Sixth String. |
| G ₃ [#] 842 $\frac{128}{125}$ $\frac{10}{9}$ | | | $\frac{9}{8}$ | | Sixth String. by flattening Tchi is Wōshō. | $\frac{16}{15}$ | $\frac{9}{8}$ (Pythagorean) | $\frac{9}{8}$ (Pythagorean). | $\frac{9}{8}$ (Pythagorean). |
| G ₃ 808.3 $\frac{25}{24}$ | | | | Sōchō 806 | Sho | G | B | F [#] | Sōchō 806 |
| G ₃ ^b 776 $\frac{25}{24}$ | | | Fifth String. First String. | | Fifth String. First String an Octave below, or in unison. Sho is tuned in unison with Fusho, the sixth Pipe above Ichiyetsu | | Fifth String. First String an Octave below | Fifth String. First String an Octave below | Fifth and Second Strings. |
| F ₃ [#] 748.5 $\frac{648}{625}$ $\frac{9}{8}$ $\frac{9}{8}$ | | | $\frac{9}{8}$ | | | $\frac{9}{8}$ | | $\frac{9}{8}$ | First String an Octave below. |
| F ₃ 718.5 $\frac{25}{24}$ | | | | Kamu 728.6 | | F | $\frac{32}{27}$ | E | $\frac{32}{27}$ |
| E ₃ 673 $\frac{16}{15}$ $\frac{256}{243} = \frac{16}{15} \div \frac{81}{80}$ | | | Fourth String. | Shojiō 696.1 | U | $\frac{10}{9}$ | G [#] | Fourth String. $\frac{32}{27} = \frac{6}{5} \div \frac{81}{80}$ or Minor third minus a comma also equal to a Major Tone plus a Pythagorean Semitone. $= \frac{9}{8} \times \frac{256}{243}$ | Taishikicho 668 |
| E ₃ ^b 646.1 $\frac{25}{24}$ | | $\sqrt[12]{2}$ | $= \frac{6}{5} \div \frac{81}{80} \frac{23}{27}$ | Taishikicho 668 | The same as Kamu the fourth Pipe below Rankio. | E _b | Fourth String. | | Fourth String. |
| D ₃ [#] 631 $\frac{128}{125}$ $\frac{10}{9}$ $\frac{9}{8} = \frac{10}{9} \times \frac{81}{80}$ | | | | Dankin 629.2 | Fourth string by flattening U to Shojitsu Kaku. | $\frac{16}{15}$ | $\frac{9}{8}$ (Pythagorean) | | $\frac{9}{8}$ (Pythagorean). |
| D ₃ 605.1 $\frac{25}{24}$ | | $\sqrt[12]{2}$ | | | Fourth string in unison with Taishikicho the fourth pipe below Fusho | D | F [#] | C [#] | Ichiyetsu 585 |
| D ₃ ^b 581.5 $\frac{25}{24}$ | | $\sqrt[12]{2}$ | Third String. | Ichiyetsu 58.5 | | | Third String. | Third String. | Third String $\frac{3}{2}$ First String a Fifth below. |
| C ₃ [#] 560.8 $\frac{628}{625}$ $\frac{9}{8}$ $\frac{9}{8}$ | | | $\frac{9}{8}$ | | | $\frac{9}{8}$ | $\frac{9}{8}$ | $\frac{9}{8}$ | |
| C ₃ 538.4 $\frac{25}{24}$ | | $\sqrt[12]{2}$ | | | Second String. Kiu 585 vib. | C | E | B 107 vib. | |
| | | | Second String. First String a Fifth above. | | Ichiyetsu the lowest tone taken as keynote. | | Second String. Intervals the same as those of Taishiki as actually tuned. | Second String. | For Second String see Fifth String above. |

the eight-tone gamut,—marred by monotony both of time and tune, and refusing to yield to any attempts at producing pleasing harmonious combinations; and lastly, in the finished form of the tempered scale, which with alternating modes and varied measures, gives us such forms and facilities of musical expression as, if not absolutely perfect, yet even now vindicate the pre-eminent claim of Music to be considered the Divine Art.

ASIATIC SOCIETY.

The monthly meeting for Yokohama was held at the Grand Hotel on Wednesday the 13th June, the chair being taken by the President, Sir Harry S. Parkes, and an unusually large number of ladies being present.

The minutes of the monthly meeting held in Tôkiô on the 23rd May, which were published in the *Japan Mail* of the 23rd idem, having been taken as read, the President reminded the members present that the next meeting to be held that day fortnight would be the Annual Meeting, at which, among other business, is to take place the election of office-bearers for the ensuing year. A list of nominations, or as he would rather say, suggestions had been prepared at the last Council Meeting, and the Recording Secretary would now read it in order that the names might be before the Society for a fortnight before the day of election.

The list read was as follows:—

For President, Sir Harry S. Parkes.

For Vice-Presidents, Dr. Murray and Mr. J. J. Keswick.

For Corresponding Secretary, Mr. Ernest M. Satow.

For ten Councillors, five being resident in Yokohama and five in Tôkiô,

Revd. A. L. Amerman.

Mr. W. G. Aston.

Revd. G. Cochrane.

Mr. F. V. Dickins.

Dr. Eldridge.

Mr. J. C. Hall.

Dr. Hepburn.

H. E. M. de Struvé.

Revd. Dr. Syle.

Revd. Dr. Veeder.

For Treasurer, Mr. John Walter.

For Recording Secretaries,

For Tôkiô, Mr. T. P. Poate.

For Yokohama, Mr. C. H. Dallas.

It was stated, however, that since this list was drawn up Mr. Poate had expressed himself unwilling to stand for the office to which he was nominated.

The Revd. Dr. Syle, Senior Vice-President for the current year, then read his paper on "Primitive Music, especially that of Japan."

At its conclusion Dr. Geerts agreed with Dr. Syle that the great difficulty in the way of ascertaining the true nature of Japanese Music lay in the variety of the scales used by their musicians. There was undoubtedly much to confirm the theories put forward by Dr. Syle, but the only way of determining with exactitude the nature of the Japanese scales is the physical one of patiently registering the number of vibrations of each note separately, and by calculating the intervals, etc., from these experimental numbers. This is a task, however, that is not easily accomplished, and would require a great number of very accurate experiments with registering apparatus of extreme delicacy, such as König's Phonautograph, or other instruments of a similar nature. Though Dr. Syle had remarked that the students of Dr. Veeder and Professor Ayrton in their musical experiments have usually found what they had agreed to expect to find, it was yet a matter of great interest that these students had commenced to lay the foundation of the building by giving us the results of their difficult and painstaking experiments. When, however, in future years physical research shall have determined with precision the various Japanese scales, there will remain a question of no small interest for the philosophical mind to solve, which is, why Japanese music does not leave a better impression on the ears and minds of foreign musicians. Japanese music cannot be said to be "false," and is immensely superior to the horrible playing of the European beershop violinist, but it is no less a fact that it utterly fails to favourably impress the foreign ear, or to awake any noble or pleasurable emotions in the breast of the foreign listener.

In moving a vote of thanks to Dr. Syle for the paper, the President observed that he trusted that the subject of primitive music which had thus been introduced in an interesting form to the Society would continue to receive their attention, as it had an obvious bearing on primitive culture and ethnological research. He agreed with Dr. Syle that the nations of the far East offered a very favourable field for the enquiry, as although they had not succeeded in making their music agreeable to our ears they had reduced it to a written system at a very early date, and in China, in particular, it had been regarded, even in the remote period of Confucius, as worthy of an important place in State organisation. A Board of Music formed then, as it still does, a special Department of the Government. However highly the Chinese and Japanese might esteem their own systems, they had proved themselves apt pupils in the study of western melody and harmony, when they had opportunities of instruction; and while they could supply us with definite information as to their ancient methods, it was to be hoped that they might derive advantage from a knowledge of our modern ideas on the subject.

ON A NEGLECTED PRINCIPLE
THAT MAY BE EMPLOYED
IN EARTHQUAKE
MEASUREMENTS.

BY

JOHN PERRY AND W. E. AYRTON,

Professors in the Imperial College of Engineering, Tôkiô, Japan.

Read before the Asiatic Society of Japan,

on the 23rd of May, 1877.



Speculations regarding the internal constitution of the earth have interested philosophers for many years. For a long time it was considered that our globe consisted of a thin solid shell containing a fluid core, but Hopkins, who was one of the first to investigate the subject on correct principles, showed that this shell must be from 800 to 1,000 miles in thickness; and still more recently Sir Wm. Thomson has proved that the apparent absence of elastic tides in the earth's surface leads to the conclusion that the average rigidity of the earth is greater than that of glass, and possibly even greater than that of steel. We do not on the present occasion propose to consider whether the state in which the internal part of the earth exists is like any state of matter with which we are acquainted; but this is, of course, a subject well worthy of very careful investigation.

It is probable that the earth was once in a molten condition and that it now is cooling, so that the shrinking resulting from this cooling must develop vast internal forces, producing strains, or deformations, of great magnitude. Other powerful forces, too, brought into existence by water being suddenly changed into steam, on entering a hot cavity; by the sudden chemical combinations of gases; or possibly by elastic tides in the earth's substance produced by the joint attractions of the sun and moon,—all tend to cause disturbances and ruptures which are brought vividly to our notice by volcanoes and earthquakes.

An earthquake has been defined by Mr. Mallet as “the transit of a wave, or waves, of elastic compression in any direction, from vertically upwards to horizontally, in any azimuth, through the crust and surface of the earth, from any centre of impulse or from more than one, and which may be attended with sound and tidal waves dependent upon the impulse and upon circumstances of position as to sea and land.” If we could only read the earthquake message rightly, we should learn all about the deformation going on in the earth's crust; for there is no doubt but that the nature of the stresses and strains, and every condition of the rocks at the origin of motion all give their character to the earthquake vibrations. It must be remembered, however, that the message before it reaches us is much modified by the media through which it has been transmitted; and, again, since there is a great want of continuity at the surface of the earth, very important modifications are introduced by surface conditions; for example, ranges of mountains are well known to reflect earthquake vibrations in a marked manner, and veins of good conducting rock by transmitting the vibrations more rapidly than less conducting veins set up transverse vibrations.

Professor Palmieri and others have invented instruments which record the date of the vibration, and give rough ideas of the direction of propagation of the earthquake waves, together with what is called the *strength* of the vibration. [Professor Palmieri's electro-magnetic seismo-

graphs were here described together with the other instruments employed by him, and others, as seismometers or seismoscopes.]

Mr. Mallet, whose wide experience on the subject of earthquakes has necessarily caused his writings to be regarded with great respect, describes the object of Professor Palmieri's instrument as follows:—"By means of this apparatus the "time of the first shock is recorded, as well as the interval "between the shocks, and the duration of each; their "direction whether vertical or horizontal is given, as also "the maximum of intensity." He further says, however:—"It is not my intention here to offer any criticism as to "the construction or performance of this instrument, the "rather as I must confess I do not quite share the high "opinion of its inventor as to the certainty or exactitude of "its indications." And this opinion of Mr. Mallet with regard to Professor Palmieri's instruments is ours with regard to all the seismoscopes of which we have read any descriptions. Indeed it is well known that the instruments hitherto invented have not satisfied even the modest hopes of their inventors, whereas, even if these hopes had been fulfilled, we should still hardly have made a step in this new science.

A simple form of seismoscope, but by no means a perfect one, would be a lamp suspended from a ceiling by a spiral spring, of such a strength that the period of vibration of the lamp in a vertical direction was nearly the same as that for its vibrations when swinging as a pendulum. The vibrations of such a lamp during an earthquake would contain motions due to the motion of its point of suspension, and an experienced observer would be able during a shock, or very soon after it, to tell the direction and strength of the shock with much more accuracy than with any of the instruments previously described. [Experiment of pendulum suspended by a spiral spring from a point to which a shock could be given, a scale being rigidly attached to the point of suspension, was here shown.] This lamp seismoscope, however, possesses the defects of

all slowly vibrating bodies; the main vibration of the lamp is (as we shall presently show) executed in its ordinary periodic time, and the lengths of its swings depend on many other things besides the strength of the shocks which would show themselves as small perturbations in the motion of the lamp. If, however, instead of actually observing the lamp we merely get a record of its greatest swing, then very little information could be obtained of the strength of the shocks, for the great or small deflection of a slowly vibrating pendulum during an earthquake will depend on whether the period of the earthquake is or is not some submultiple of the period of the pendulum, so that a considerable mathematical knowledge and much time would be requisite to deduce from the comparatively small ripples on the larger vibrations the nature of the earthquake. In addition, as the length of the swings of the lamp will generally be much greater than the earthquake vibrations, they will, if recorded on paper, require a very large recording apparatus.

We now proceed to the principle which is to enable us to record an earthquake message. It must be evident that the message can only be correctly recorded when we have obtained the complete motion at every instant of time during the earthquake of a large portion of the rocky crust of the earth. Any point *P* in the solid earth has a certain position, a certain velocity and a certain acceleration in a certain direction at any instant of time during an earthquake, and if we know these elements we are said to know the motion of *P*. Now we have a complete record of an earthquake when we know the motions of all points *P* affected by the earthquake, and if the earth were rigid this could be derived from a knowledge of the motion of three of its points not in the same straight line. Still, although the earth is not rigid, and although the conditions of motions of different parts of an elastic non-homogeneous solid are very complicated, we may say that the important character of an earthquake, its origin and the media through which it has travelled as well as its rate of motion, are recorded and may perhaps be easily deduced from the

known motions of three well affected points in the solid earth. Believing this to be the case, and seeing how important it is to the whole science of terrestrial physics that the earthquake message should be read, we have been led to investigate mathematically the motion during an earthquake of a body attached to the earth by springs. And we have come to the conclusion that the centre of mass of a body fastened by means of springs inside a metal box rigidly attached to the earth, has *in certain cases* motions with respect to the box itself which in miniature, with great exactitude, represent the motions of a point of the box during the earthquake; this result being truly obtained when the springs are exceedingly strong, so that the motion of the mass relatively to the box is exceedingly small, and practically obtained when the springs are so strong that the vibrations possible for the mass when there is no earthquake are several times quicker than the earthquake vibrations themselves; that when the springs, however, are weak the motion of the mass relatively to the box in no way represents the absolute motion of the box itself, but that the introduction of friction, although it diminishes the accuracy of observations of regular vibratory earthquakes made by means of very rapidly vibrating springs, makes it possible to get an approximation to accuracy even with slowly vibrating springs, and is always desirable when the earthquake vibration is irregular and intermittent. In fact, in order that the motion relatively to the box of the centre of mass of the body supported in it should accurately represent the real motion of a point of the box itself, it is necessary that the mass should be large and the springs supporting it so strong that its natural time of vibration should be about five times as fast as that of the earthquake itself, supposing no friction be employed beyond that necessarily introduced by the mechanism of the recording apparatus: or a much larger mass may be suspended by weaker springs if the chamber be filled with water, or some oily or tarry compound which will introduce the necessary amount of friction.

Let AB (figure 1) be a rigid box firmly attached to the earth; M is a large mass acted on by two horizontal springs and subjected to no forces except those introduced by the springs, its weight for example being neglected. When both the box and M are at rest let their centres coincide at the point C .

First let the box be at rest, and let M be made to vibrate in a horizontal line passing through its centre, and let y be its distance at any time t from a point O fixed in space, then

$$\frac{d^2y}{dt^2} = -n^2 (y - OC) \dots \dots \dots (1)$$

$$\text{or } (y - OC) = P \cos (nt + Q)$$

where P is the amplitude, and where

$$n = \frac{2\pi}{T},$$

T being the periodic time.

Next let the box be in motion in a horizontal direction, and let z be the distance of its centre from the fixed point O at the time t , then

$$\begin{aligned} \frac{d^2(y-z)}{dt^2} &= \frac{d^2y}{dt^2} - \frac{d^2z}{dt^2} \\ &= -n^2(y-z) - \frac{d^2z}{dt^2} \text{ from (1).} \end{aligned}$$

If the velocity of the box is uniform

$$\frac{d^2z}{dt^2} = 0$$

therefore the relative motion of M about the centre of the box is a simple harmonic motion.

Let the box have a uniform horizontal acceleration a , then

$$\frac{d^2(y-z)}{dt^2} = -n^2 \left(y - z + \frac{a}{n^2} \right),$$

therefore the body M has a simple harmonic motion about a point at a distance $\frac{a}{n^2}$ behind the centre of the box.

Now whatever be the forces acting on the box or the ball.

$$\frac{d^2(y-z)}{dt^2} = \frac{d^2y}{dt^2} - \frac{d^2z}{dt^2},$$

or the acceleration of the ball relative to the box equals the absolute acceleration of the ball minus that of the box.

Let M be resisted with a frictional force proportional to its mass and to its velocity relative to the box, let $2f$ be the frictional coefficient, and let the earthquake vibration be a regular harmonic motion about the fixed point O , then

$$\frac{d^2(y-z)}{dt^2} = -2f \frac{d(y-z)}{dt} - n_1^2(y-z) + n_1^2 A \cos(n_1 t + B),$$

where A is the amplitude of the earthquake vibration, and

$$n_1 = \frac{2\pi}{T_1},$$

T_1 being the periodic time of the earthquake vibration. If when the time is nought the box is at the limit of its swing then B is nought, or

$$\frac{d^2(y-z)}{dt^2} = -2f \frac{d(y-z)}{dt} - n^2(y-z) + n_1^2 A \cos n_1 t,$$

from which substituting x for $y-z$ we get

$$\frac{d^2 x}{dt^2} = -2f \frac{dx}{dt} - n^2 x + n_1^2 A \cos n_1 t,$$

as the equation of relative motion of the centre of M . Now the maximum acceleration of the box is $n_1^2 A$ or $4 \frac{\pi^2 A}{T_1^2}$, consequently if this acceleration were constant, and if there were no friction impeding the motion of M , the mean position of the centre of M would be behind the centre of the box by a distance

$$\frac{n_1^2 A}{n^2} \quad \text{or} \quad \frac{4\pi^2 A}{T_1^2 n^2}.$$

Let this distance be numerically equal to E , then

$$\frac{d^2 x}{dt^2} + 2f \frac{dx}{dt} + n^2 x - n^2 E \cos n_1 t = 0$$

SECTION A.

The first and at present the most important case to consider is when f is less than n .*

The integral of this equation is

$$x = e^{-ft} D \cos (\sqrt{n^2 - f^2} t + F) - \frac{E n^2 \cos(n_1 t + \tan^{-1} 2n_1 / (n_1^2 - n^2))}{(n_1^2 \sqrt{-n^2})^2 + 4n_1^2 f^2}$$

For facility of calculation we assumed above that the box was at the limit of its swing when the time was nought. We must now make some assumption with regard to the initial position of M in the box. As the most important point to consider is whether M by its motion relative to the box correctly records the vibration of the box when this vibration in some way suddenly alters its character, we arbitrarily assume that, when the time is nought, M is at the limit of its swing in the positive direction, since we know that if the vibration of the box did not alter its character and if M were previously correctly recording then at time nought M would be at the limit of its swing in the negative direction.

$$\begin{array}{ll} \text{When} & t=0 \\ & x=E \\ \text{and} & \frac{dx}{dt}=0 \end{array}$$

By substituting in (2) these values we find

$$\cos F = \frac{E}{D} \left\{ 1 + \frac{n^2 (n_1^2 - n^2)}{(n_1^2 - n^2)^2 + 4n_1^2 f^2} \right\}$$

$$D = \frac{E n_1^2 n}{\sqrt{(n^2 - f^2)} [(n_1^2 - n^2)^2 + 4n_1^2 f^2]}$$

so that given n , n_1 , $2f$ and A we can find the position of M with respect to the centre of the box at every instant.

I.—Let there be no friction impeding the motion of M

* This is the condition which allows M when disturbed to swing about its position of equilibrium with an infinite number of decreasing deflections right and left. As f increases we see, on examining the first part of the integral, that the periodic time of M about its position of rest becomes longer and longer, and the swings of M diminish more rapidly in amplitude.

in the box, that is let f equal nought, then equation (2) becomes

$$x = \frac{E n_1^2}{n_1^2 - n^2} \cos n t - \frac{E n^2}{n^2 - n_1^2} \cos n_1 t,$$

a composition of two harmonic motions of different periods and amplitudes, or it may be expressed as

$$x = \left\{ \begin{array}{l} \text{distance of centre of } M \text{ from the centre of} \\ \text{the box due to natural vibrations of the} \\ \text{spring without earthquake.} \end{array} \right\} \\ - \left\{ \begin{array}{l} \text{distance of the centre of } M \text{ from the centre} \\ \text{of the box due to earthquake motion, } M \\ \text{being supposed to have no natural vibra-} \\ \text{tion due to the springs.} \end{array} \right\}$$

Now if we want the relative motion of M to represent the earthquake vibration we must have

$$\frac{E n^2}{n_1^2 - n^2} \quad \text{many times greater than} \quad \frac{E n_1^2}{n_1^2 - n^2}$$

or T_1 many times greater than T .

For example, let the springs be strong so that

$$\begin{array}{l} T_1 = 10 T \\ \text{that is, } n = 10 n_1 \end{array}$$

then
$$x = -\frac{E}{99} \cos n t + \frac{100 E}{99} \cos n_1 t$$

or the vibrations of M due to the natural vibrations of the springs have an amplitude only $\frac{1}{100}$ th part of the vibrations of M which represent the earthquake. In fact M by its relative motion in the box merely records the earthquake vibrations, to a scale diminished nearly in the ratio of n^2 to n_1^2 or as 100 to 1, and the natural vibrations of the spring are quite imperceptible.

If now we take the opposite case where the springs are weak, so that the natural vibrations of M are slower than the earthquake vibrations, we find supposing

$$\begin{array}{l} T = 3 T_1 \\ \text{or } n_1 = 3 n \\ x = \frac{9 E}{8} \cos n t - \frac{E}{8} \cos n_1 t, \end{array}$$

that is the amplitude of the motion M relative to the

box caused by the natural vibrations of the springs is 9 times as great as that due to the earthquake vibrations.

II. Let $f = \frac{1}{2} n$,

and let the springs be strong so that M has a natural vibration quicker than the earthquake vibration. For instance let

$$T_1 = 10 T$$

$$\text{or } n = 10 n_1$$

then from (2), the general solution for f less than n , we find

$$x = e^{-5n_1 t} \frac{E}{86.1} \cos(8.66 n_1 t + 90^\circ) - E \cos(n_1 t - 5^\circ 46').$$

Now when t is nought the first term, which is due to the natural vibrations of M independent of the earthquake, is small compared with the second term which is due to the earthquake itself; and, in addition, as t increases the first term grows rapidly smaller, therefore we may say from the beginning x represents the position of M due to the earthquake only, and is independent of the natural vibrations of M . Now let the springs be weak so that they have a natural vibration slower than the earthquake vibration,

$$\begin{array}{ll} \text{let} & T = 10 T_1 \\ \text{or} & n_1 = 10 n \\ \text{and} & f = \frac{1}{2} n \text{ as before} \end{array}$$

$$\text{then } x = e^{-\frac{n_1}{20} t} \times 1.16 E \cos(1.16 n_1 t + 80^\circ 5') \\ - \frac{E}{96} \cos(n_1 t + 5^\circ 46').$$

At the beginning we see that the natural vibrations of M greatly preponderate, and that it is not until

$$t = \frac{T}{\pi} \log_e 111.4$$

that the amplitude due to the natural vibrations becomes diminished to $\frac{E}{96}$. After this time the vibrations due to the earthquake begin to preponderate and eventually entirely mask the others, and the amplitude becomes $\frac{E}{69}$

that is a little greater than A , or the amplitude of the earthquake vibration. It is interesting, therefore, to notice that with a weak spring using friction although the vibrations of M do not represent the earthquake vibrations at the beginning, they do after some time if the earthquake only lasts long enough, and continues to be exactly the same pure harmonic motion.

SECTION B.

Let the friction be such that

$$f=n,$$

then the solution of the differential equation becomes

$$x=e^{-ft}(G+Ht)-\frac{E n^2 \cos(n_1 t + \tan^{-1} \frac{2 n_1 f}{(n_1^2 - n^2)})}{\sqrt{(n_1^2 - n^2)^2 + 4 n_1^2 f^2}}.$$

Making $x=E$

$$\text{and } \frac{dx}{dt}=0$$

when $t=0$

$$\text{we find } \frac{G}{E} = \frac{n_1^4 + 3 n_1^2 n^2}{(n_1^2 + n^2)^2}$$

$$\text{and } \frac{H}{E} = \frac{n_1^2 n}{n_1^2 + n^2}.$$

Let the springs be strong and

$$n = 10 n_1$$

$$\begin{aligned} [\text{then } x = e^{-10 n_1 t} & \left[E \left(\frac{301}{10201} + \frac{10}{101} n_1 t \right) \right] \\ & - \frac{100}{101} E \cos \left(n_1 t - \tan^{-1} \frac{20}{99} \right) \end{aligned}$$

If the springs are weak, and

$$n_1 = 10 n$$

$$\begin{aligned} \text{then } x = e^{-\frac{n_1 t}{10}} & E \left(\frac{10300}{10201} + \frac{100}{101} n_1 t \right) \\ & - \frac{E}{101} \cos \left(n_1 t + \tan^{-1} \frac{20}{99} \right). \end{aligned}$$

These results are of the same nature as before; with the strong springs we see since $e^{-10n,t}$ is small compared with $\frac{100}{101}$, that x represents the displacement due to the earthquake only, with the weak springs when t is small the natural vibrations of M preponderate and mask the earthquake effect, but as t increases these vibrations become smaller relatively to those due to the earthquake, so that the weak springs will eventually record the earthquake if it only lasts long enough.

SECTION C.

Let $f > n$

then the general solution of the differential equation becomes

$$x = e^{-ft} D \cos (p \sqrt{f^2 - n^2} t + F) \\ + \frac{E n^2 \cos (n_1 t + \tan^{-1} \frac{2 n_1 f}{n_1^2 - n^2})}{\sqrt{(n_1^2 - n^2)^2 + 4 n_1^2 f^2}},$$

as before the values of D , E , and P must be determined from the character of the motion when t is nought.

When f is equal to or greater than n then an examination of the first term of the solution shows that M has *not* a natural vibratory motion, but if deflected from its position of rest, when there is no earthquake, it will gradually approach this position but never reach it.

Although, therefore, the first term of the above solution rapidly disappears, that is, the natural vibrations of the springs die away whatever be the strength of the latter, still the application of recording apparatus, and the necessity that M shall reach its mean position in a reasonably short time after disturbance, have caused us to restrict ourselves to cases in which f is less than n .

[Experiments were here shown using weak and strong springs so as to give M a naturally long or short period. The motion of M , relative to the frame from which it was supported, produced on giving to the frame a vibra-

tory movement being magnified and indicated by a long light pointer moving over a scale rigidly attached to the frame. The effect of introducing various amounts of friction was shown by causing the pointer to rub with more or less force against the scale.]

At the commencement of section A it was explained that the box and mass M were both assumed to be deflected from their positions of rest when the time equalled nought. It must now be observed that M was supposed deflected to the opposite side of the centre of the box to that towards which it would be deflected on the box receiving a shock, and the following investigation will show that that assumption really corresponded with a sudden change in the form of harmonic motion in accordance with which the box was moving, or what may be called a discontinuity in the motion of the box. For while we have proved that with our original supposition the motion of the box was instantaneously recorded by the motion of M if the springs were strong, but that if they were weak the early vibrations were lost, and that it was only after some time, and then only provided the earthquake lasted long enough, that a record was left, we shall now prove that if the earthquake be regular *without any discontinuity whatever* (which, however, our experience of earthquakes in Japan leads us to believe is rarely the case) then weak springs will give good results.

SECTION D.

Let the earthquake motion be a periodic function of the time then we know it may be expressed in the form

$$z = A_0 + \sum A \cos (N t + F),$$

where A , N , and F may have any values we please in the successive terms of the series. Or generally it may be expressed in the form

$$z = \sum A \cos (N t + F)$$

one N having a value nought.

Let us take the restricted case

$$z = \sum A \cos N t,$$

then if there is no discontinuity at the beginning

$$z=0$$

$$\text{and } \frac{dz}{dt}=0$$

$$\text{when } t=0$$

from which it may easily be shown that

$$\Sigma A = 0.$$

The differential equation of the motion of the centre of the mass M relative to the box is

$$\frac{d^2 x}{dt^2} + 2f \frac{dx}{dt} + n^2 x = n^2 \Sigma E \cos N t$$

$$\text{where } E = \frac{A N^2}{n^2}$$

for each value of A and N taken in the successive terms of the series. The solution of this differential equation is, if f is less than n ,

$$x = e^{-ft} \left\{ C \cos (\sqrt{N^2 - f^2} t + D) \right. \\ \left. - n^2 \Sigma \frac{E \cos (N t + \tan^{-1} \frac{2 N f}{N^2 - n^2})}{\sqrt{(N^2 - n^2)^2 + 4 N^2 f^2}}, \dots \dots (3), \right.$$

the constants C and D being determined from the initial conditions which are

$$\text{when } t = 0$$

$$x = 0$$

$$\text{and } \frac{dx}{dt} = 0;$$

from which it follows that

$$C \cos D = n^2 \Sigma J$$

$$\text{where } J = \frac{E (N^2 - n^2)}{(N^2 - n^2)^2 + 4 N^2 f^2}$$

$$\text{and } C^2 = n^4 \Sigma J^2 + \frac{n^4 f^2 (\Sigma J - \Sigma L)^2}{n^2 - f^2}$$

$$\text{where } L = \frac{2 E N^2}{(N^2 - n^2)^2 + 4 N^2 f^2}$$

It is obvious that we wish the coefficients in the above equation for x to be proportional to nought, A_1 , A_2 , A_3 , etc., and also the epochs $\tan^{-1} \frac{2 N_1 f}{N_1^2 - n^2}$, $\tan^{-1} \frac{2 N_2 f}{N_2^2 - n^2}$, etc.,

to be all nought if we are to have a perfect representation of the earthquake. Now for the epochs to be very small, f being a reasonable coefficient of friction, say f equals $\frac{1}{2} n$, we must have $\frac{n}{N}$ either very small or very large. Now examining the coefficients of the second part in equation (3)

$$\sqrt{\frac{n^2 E_1}{(N_1^2 - n^2)^2 + 4 N_1^2 f^2}}, \sqrt{\frac{n^2 E_2}{(N_2^2 - n^2)^2 + 4 N_2^2 f^2}}, \text{ etc.}$$

we see that the condition $\frac{n}{N}$ being very small will make them proportional to A_1, A_2 , etc., as is required for a perfect representation of the earthquake motion, and if we put the coefficient C into the form

$$C^2 = \Sigma^2 A \frac{1 - \frac{n^2}{N^2}}{(1 - \frac{n^2}{N^2})^2 + 4 \frac{f^2}{N^2}} + \frac{1}{\frac{n^2}{f^2} - 1} \Sigma^2 A \frac{1 + \frac{n^2}{N^2}}{(1 - \frac{n^2}{N^2})^2 + 4 \frac{f^2}{N^2}}$$

we observe that when $\frac{n}{N}$ is very small and f the same as above

$$C = \sqrt{\frac{2}{3}} \Sigma A.$$

Now as ΣA equal nought, as previously shown, is the condition of continuity C disappears, and hence all earthquakes which have continuity from the beginning, and which are expressible in the form

$$z = \Sigma A \cos Nt$$

are perfectly represented if n is very small compared with every N , that is if the natural vibration of the spring has a period much longer than the period of any element of the earthquake. This also introduces the additional restriction that no N can be very small, conse-

quently x cannot have a constant term. If in the above f is nearly equal to n then

$$C = \text{a very large number} \times \Sigma A.$$

If ΣA is absolutely nought then the size of the multiplier is of no consequence, but if ΣA is not absolutely nought, that is if there is a slight discontinuity, then C may be very large so that with more friction the failure of the weak springs to produce an accurate registering apparatus is very much more marked. And since the coefficient e^{-ft} is greater than e^{-nt} and e^{-nt} is large, since n is small, it follows that e^{-ft} will be large, and will not rapidly reduce the value of the first term, which may be said to belong to the natural vibrations of the springs, in equation (3) for x .

We shall now consider the alternate condition, viz.

$$\frac{n}{N} \text{ very large,}$$

$$\text{i.e. } \frac{N}{n} \text{ very small, or the springs very strong.}$$

The coefficients in the second part of equation (3) may be put in the form

$$\frac{A_1 \frac{N_1^2}{n^2}}{\left(\frac{N_1^2}{n^2} - 1 \right)^2 + \frac{4f^2 N_1^2}{n^4}}, \quad \frac{A_2 \frac{N_2^2}{n^2}}{\left(\frac{N_2^2}{n^2} - 1 \right)^2 + \frac{4f^2 N_2^2}{n^4}},$$

&c.,

and as $\frac{f}{n^2}$ is assumed to be equal to $\frac{1}{4}$ we see that the denominator may be regarded as constant and very little less than unity; consequently the second, third, etc., terms of equation (3) will be proportional to $A_1 N_1^2$, $A_2 N_2^2$, etc. It follows, therefore, that the elementary vibrations of the earthquake, of smaller periodic times than the rest will, in the representation, have greater amplitudes than they ought to have. If, however, the elementary periods are not very unequal the curve drawn by the seismograph will be a fairly approximate representation of the earthquake.

C may be expressed in the form

$$C^2 = \Sigma^2 A \frac{N^2}{n^2} \frac{\frac{N^2}{n^2}}{\left(\frac{N^2}{n^2} - 1\right)^2 + 4 \frac{f^2}{n^2} N^2} \\ + \frac{1}{\frac{n^2}{f^2} - 1} \Sigma^2 A \frac{N^2}{n^2} \frac{\frac{N^2}{n^2} + 1}{\left(\frac{N^2}{n^2} - 1\right)^2 + 4 \frac{f^2}{n^2} N^2},$$

or since $\frac{f^2}{n^2}$ equals $\frac{1}{4}$, and $\frac{N}{n}$ is very small,

$$C = \frac{f}{\sqrt{n^2 - f^2}} \Sigma \frac{A N^2}{n^2},$$

therefore C is a very little less than the algebraical sum of the other coefficients, and if we suppose as above that the values of N_1 , N_2 , &c. are not very different then since ΣA equals nought it follows that $\Sigma \frac{A N^2}{n^2}$, and therefore C, cannot be very great.

We, therefore, conclude that in the case of an earthquake represented by the equation

$$z = \Sigma A \cos Nt$$

both weak and strong springs give good results.

As an example let the earthquake motion be represented by
 $z = A(\cos k t - \cos \frac{11}{9} k t),$
 the curve corresponding with which is shown by the thick black line in figure 2.

Let the springs be strong so that

$$n = \frac{100}{9} k$$

and let

$$f = \frac{n}{2},$$

then determining the values of the constants we find

$$x = -e^{-5.5kt} \times 0.00458 A \cos(9.62 k t + 0.5142) \\ - 0.00814 A \cos(k t - 0.0917) \\ + 0.01218 A \cos(\frac{11}{9} k t - 0.1096)$$

the curve corresponding with which is shown by the thick black line in figure 3. This curve is magnified so that the greatest amplitude is nearly the same as the greatest amplitude in the earthquake motion.

the earthquake shock. Even the period of an earthquake vibration does not seem to have been measured with any approach to accuracy, the information obtained in some cases from the stopping of clock pendulums is quite unsatisfactory, since the limits between which we can place the period of earthquake vibrations so as to stop an ordinary pendulum clock are wide apart.

SECTION G.

Figure 5 shows roughly our first idea of the construction of a seismometer in accordance with the principles we have enunciated. A leaden ball of some 400 lbs. mass is supported by five strong spiral springs inside a strong iron case, rigidly fixed to the rocky crust of the earth, four of the springs are horizontal and one vertical and all have the same period, so that if there were no friction the centre of mass M would describe an ellipse when M is freely vibrating. In order to get a record of north-south, east-west, and up-down motion of M three arms, two of which $A B$, $C D$ are shown in the figure, carry pencils pressed by means of small spiral springs on a band of paper moved regularly by clockwork in a horizontal direction at right angle to $B D$; the clockwork, as in Professor Palmieri's and other instruments, being set in motion at the commencement of the earthquake. The arm $A B$ is rigidly fixed to a small piece $A E$ at right angles to it, this again by means of a pivot at E is fixed to $E F$, which is rigidly attached to the ball. A pin at A supported by the frame-work of the instrument allows $A B$ to move round it, and so to record vertical motions of the ball, and the pin A having a certain amount of lateral motion in the slot combined with the shape of $A E F$ prevents $A B$ recording any lateral motions, since the motion of $A B$ parallel to itself is so small as to be imperceptible. $C D$ turns about the pin C , and is prolonged to G where it is attached by a pivot to an eye rigidly attached to the ball: $G C D$, therefore, records lateral motions in one direction, say

north-south, but is not effected by east-west motions or by vertical motions of the ball, as these latter only cause the pin *C* to move vertically in the slot. The third arm, not shown in the figure, by a somewhat similar arrangement of levers, only records east-west motions. All the motions are recorded on one plane on the same band of paper so that the curves would be somewhat as shown in figure 6. Drawing any line *ab* at right angles to the motion of the paper we see that at that moment of time the ball was moving from south to north, from west to east, and from up to down, and from the shape of the curves we can determine the position, velocity and acceleration in magnitude and direction of the ball at that, or any other, instant of time; the complete law of the motion of the ball is, therefore, recorded. Should the box be slightly tilted and some of the springs elongated or shortened during the disturbance, then the motions will not be strictly north-south, east-west, etc., but it is evident that this cannot produce any serious discrepancy in the indications unless the earthquake motions be exceedingly violent, but when this is the case it will not be very difficult to eliminate the errors.

It is evident the points *B* and *D* may be above the ball instead of below it, as in the figure, and this arrangement would be preferable when we wish to surround the ball with a liquid, as the paper could then be kept quite clear of the liquid.

SECTION H.

Mr. Mallet is of opinion that there is no turning action of the ground during earthquakes, but we think this conclusion may be perhaps a little premature, since any explanation that has been given of the observed twisting of columns, based on considerations of the attachment at the base, might also apply to the twisting of rock in its natural position. To test whether any such turning action really exists a simple apparatus such as is shown in figure 7 might be employed. *H* is an iron fly wheel rigidly attached by a stretched thick wire *K L* to a rigid iron

framework $K M N$. An arm $\mathcal{Y} P$ carries a pencil at P touching a band of paper (the one for example employed in the previous seismometer) moved by clockwork parallel to $M N$. If the periodic time of the torsional vibration of $H \mathcal{Y}$ be perhaps one fifth of that of the earthquake, then any rotatory vibration of the earth will be well recorded.*

The observations of Mr. Mallet made at the scene of the Neapolitan earthquake of 1857, are of great value in connection with the science of seismometry, which owes its growth in a great measure to the labours of this gentleman [The plates in Mr. Mallet's book were here briefly described]. But we have no hesitation in saying that *three* recording seismographs, such as we have described, suitably placed in the plain of Yedo and with clocks in telegraphic communication with one another, would give more information regarding earthquakes in a few months than could be obtained by the most experienced observers from the remains of many destroyed cities. We are aware of the great interest now being taken by the German Asiatic Society in the subject of seismometry, and it is to a certain extent in consequence of this that we have been led to publish this paper. A not very extended series of experiments would probably be all that would be required before we could furnish working drawings of an almost perfect recording instrument, and after such instruments had been constructed the Japanese Government might possibly be induced to allow them to be used at their telegraph offices. With very little extra expense these seismometric records might be supplemented by regular observations of the natural currents in the telegraph lines, to the importance of observing which we have recently directed the Society's attention in a former paper.

* Since writing this paper a rather sharp earthquake has been experienced in Tôkiô which caused the scale pans of a balance in the Physical Laboratory of the Imp. Coll. of Eng. to describe perfect circles, the chains about 35 centimetres long which supported the pans and the pans themselves moving like a conical pendulum. The radius of the circle described by each pan at the beginning was about 5 centimetres and the motion continued for a long time after the earthquake had ceased.

Figure 2.

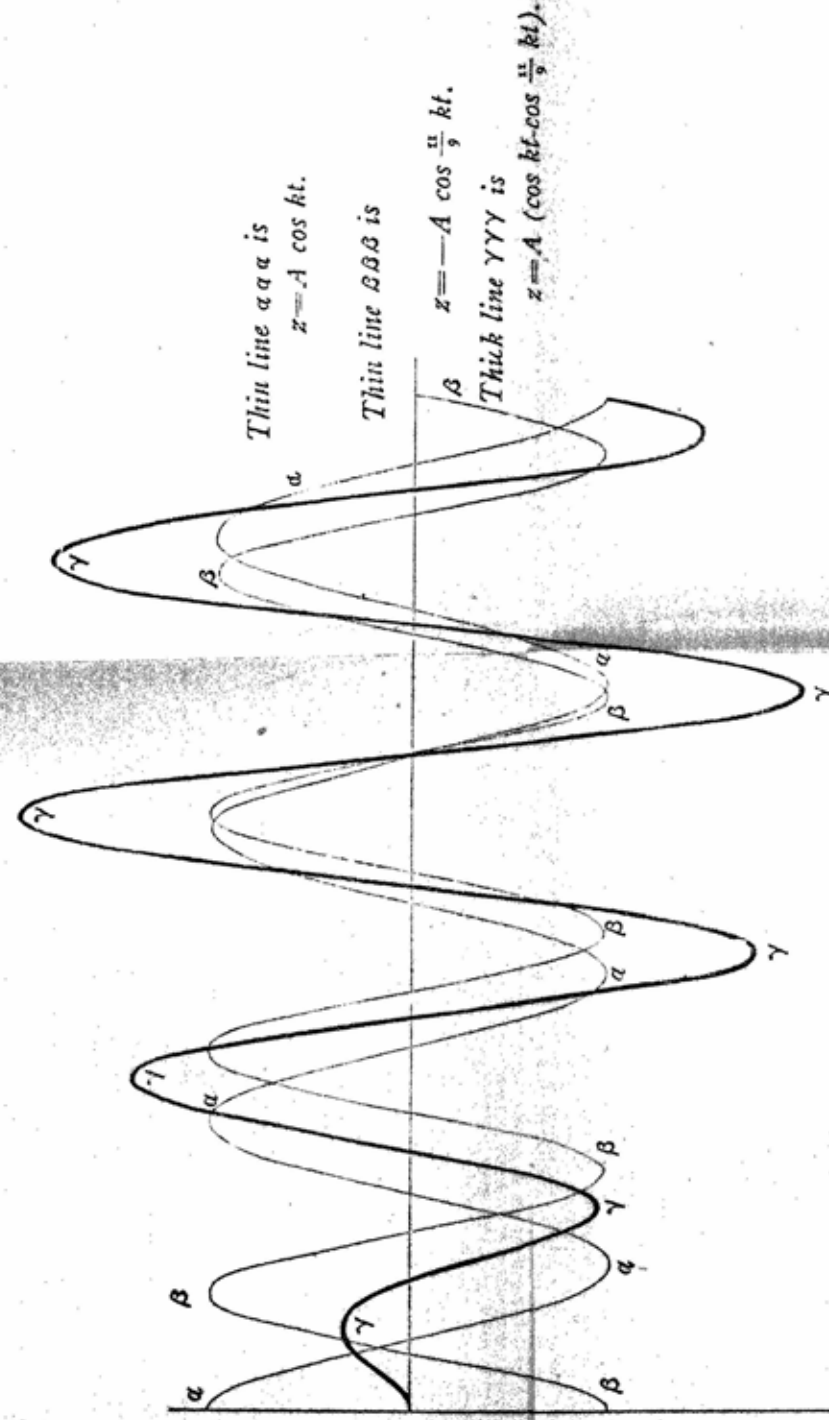


Figure 3.

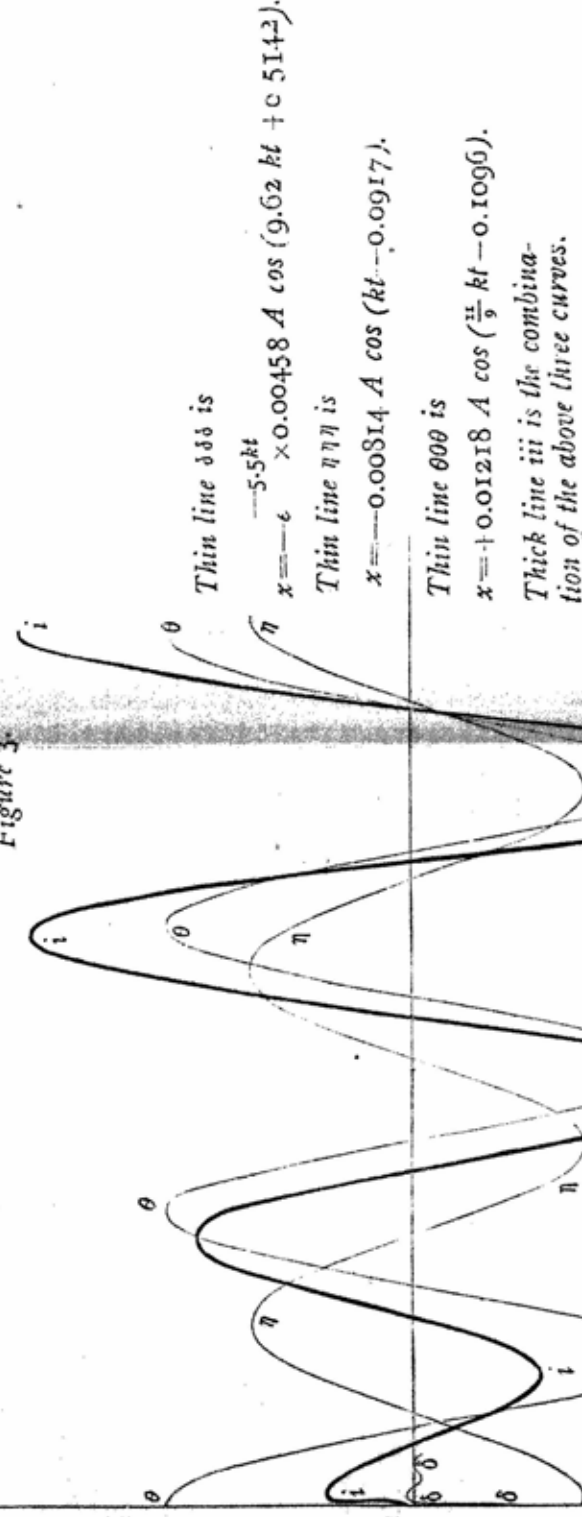
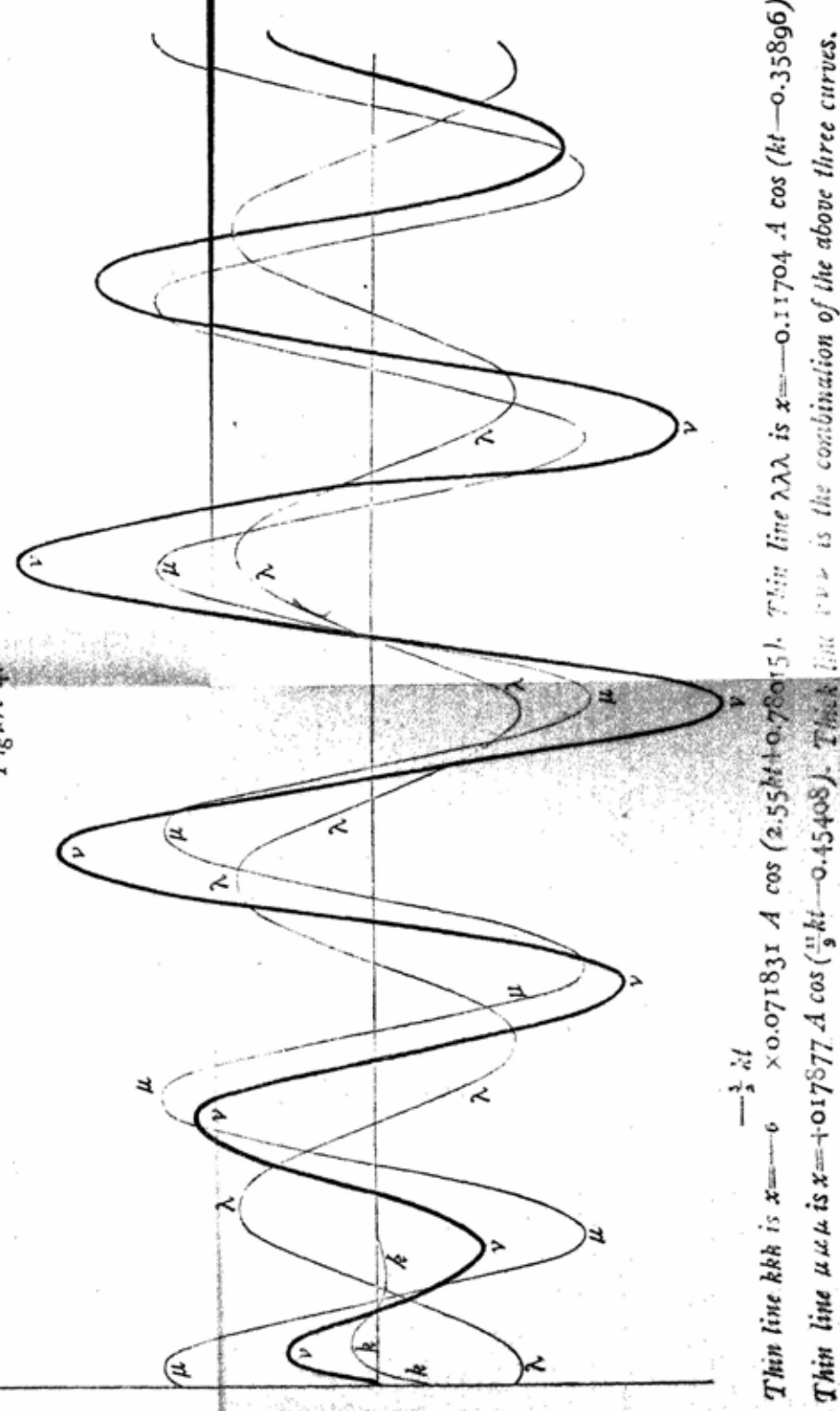
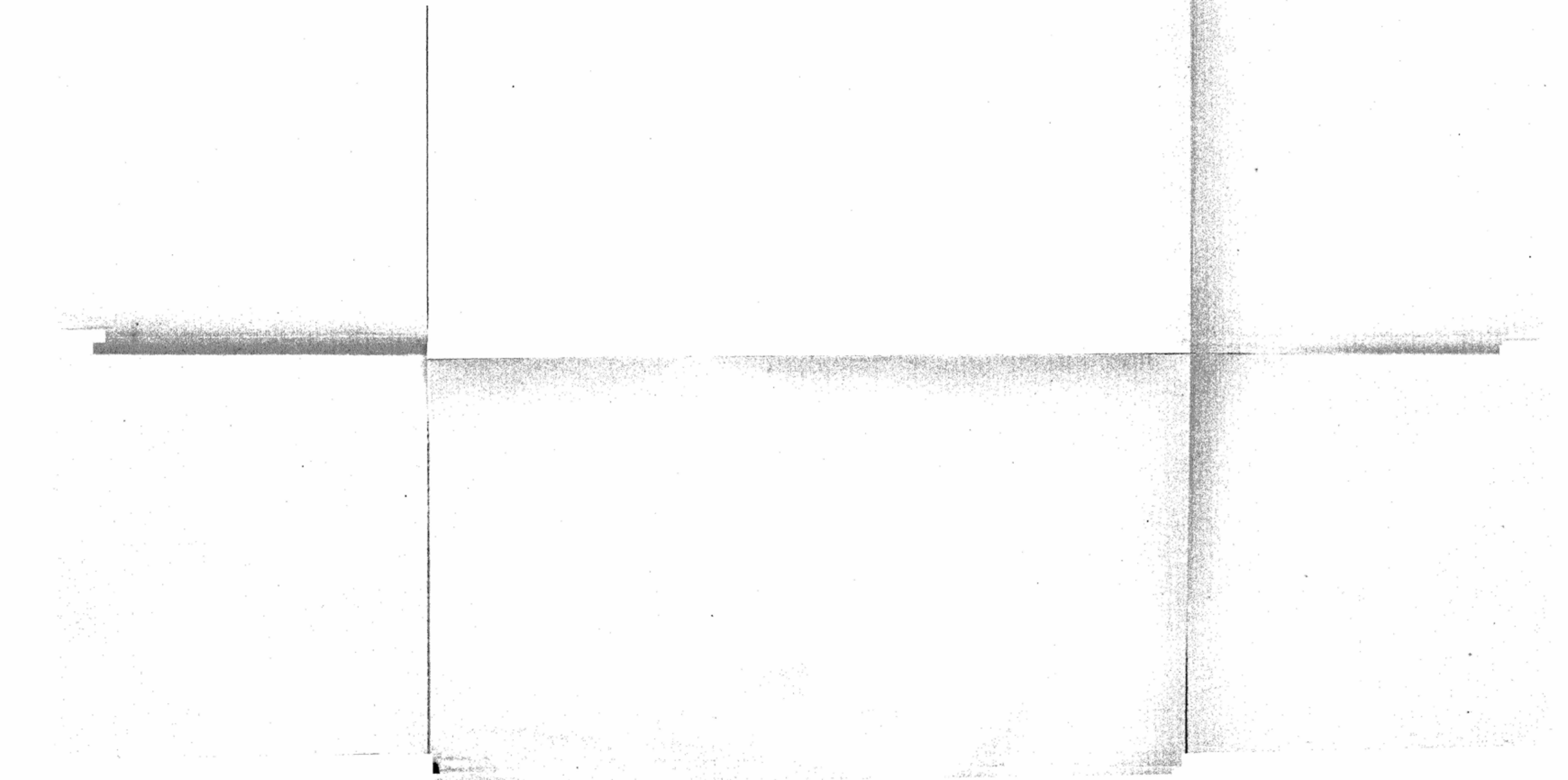


Figure 4.





ASIATIC SOCIETY OF JAPAN.

An ordinary meeting was held in the Society's Library, Tōkiō Dai Gakko, on the 23rd instant, Dr. Syle, Vice-President, in the chair.

The minutes of last meeting were read and approved. The Council acknowledged a contribution from Professor Perry "On Steam," and the Library Committee reported receipt of the Proceedings of several learned Societies.

Professor Perry then read a paper "On a neglected principle that may be employed in Earthquake Measurements."

The Chairman invited discussion on the paper. Mr. Poate suggested that Peruvian Balsam, whose viscosity could be regulated, would be such a liquid as Messrs. Ayrton and Perry required. A mixture of tar and pitch, which Mr. Perry thought of, Professor Smith pointed out was very unsuitable on account of the effects of heat on these substances.

Prof. Smith further said that in the experimental study of earthquakes he thought that exact time observations taken at a large number of stations scattered over the affected district were of much greater importance than very complete and accurate observations taken at any one place. The dynamics of weather meteorology had only been successfully studied since the establishment of a wide-spread system of observation stations, whose records could be studied in connection with each other and as a whole, and a similar system had to be adopted in tracing the origin and progress of disturbances in the earth's crust. As a wind register may be made to the record with tolerable accuracy the direction and velocity of the wind from instant to instant at the particular place in which the instrument is placed, so might a seismograph be made which would indicate the nature of the disturbance of that particular point of the earth's surface on which it rested, with an exactness proportionate to the mechanical science and skill brought to bear upon its design. But the motion of one particular part of the surface was by no means a true approximation to the average motion over a large area, nor could there be deduced from a knowledge of it a knowledge of the progress with regard to direction and velocity of the general wave, any more than the general direction and velocity of a wave crossing an expanse of the sea could be discovered by watching the part of it that runs round a rock or up a creek. In the earth's surface lie scattered everywhere resistant obstacles which deflect the earthquake-wave irregularly to one side or the other from its general course. The only way of arriving at a true knowledge of the value of the wave as a whole was to note accurately the exact dates of its arrival at a great many scattered stations. Professor Smith then pointed out that Professor

Perry's equations did not take account of the fact that as the earth's surface tilted over the seismograph-case along with it, the line of action of the vertical suspending springs altered its inclination to the line of action of the weight of the ball, and expressed his belief that the modification necessary on account of this was very considerable. Professor Smith did not agree with the writers of the paper in thinking that the natural period of vibration of the ball suspended by the springs should be made short compared with the expected period of the earthquake, because, although Professor Perry had mathematically proved that if it was so, the motion of the ball relatively to the box would be approximately the same as the motion of the box itself, only reduced in scale, still it was only an approximation, and the long curve representing the earthquake would be difficult to deduce from the actually registered rippled curve unless the amplitude of the short ripples representing the "instrumental" vibration was small compared with the amplitude of the long earthquake curve upon which the ripples were superimposed. Now, although from a mathematical point of view there was no impossibility in arranging the various dimensions of the instrument so that the above relation between the amplitudes would hold, still Professor Smith was of opinion that Professors Ayrton and Perry would, when they came to design their instrument, find considerable practical difficulty in fulfilling simultaneously the two conditions that the one vibration should have both its amplitude and its period very much longer than those of the other. If, on the other hand, the natural period of vibration of the instrument were made considerably longer than of the earthquake, the reduction of the registered curve to the true earthquake curve would be somewhat more complicated. The accuracy of the result was worth the extra trouble in the case of an expensive instrument such as was under discussion.

The Chairman now observed that the usual time for closing the meeting had arrived and put to the meeting whether or not the discussion should be continued some other day. It was agreed that the discussion be continued next Wednesday, when also the other paper advertised for the meeting would be read.

ASIATIC SOCIETY OF JAPAN.

An adjourned meeting was held in the Society's room, Tōkiō Dai Gakko on the 30th May, 1877, Rev. Dr. Veeder in the chair.

The further discussion on Professors Perry and Ayrton's paper "On a neglected principle that may be employed in Earthquake measurements" was carried on.

Professor Smith asked the authors to repeat in a few words what their principle was.

Professor Ayrton then read the following passage from the paper which contained a statement of the principle: "Believing this to be the case, and seeing how important it is to the whole science of terrestrial physics that the earthquake message should be read, we have been led to investigate mathematically the motion during an earthquake of a body attached to the earth by springs. And we have come to the conclusion that the centre of mass of a body fastened by means of springs inside a metal box rigidly attached to the earth, has in certain cases motions with respect to the box itself which in miniature, with great exactitude, represent the motions of a point of the box during the earthquake." Professor Marshall agreed with Professor Smith in thinking that the corrections arising from the tilting of the instrument proposed by the authors was by no means an element to be neglected and thought the authors were premature in calling the principle a neglected one inasmuch as they had not proved by constructing an instrument that the principle would answer in practice.

Mr. Knipping observed that with regard to the more simple instruments which are proposed for the observation of earthquakes, he had found neither the bowl with molasses nor the tub with water, the inside of which is rubbed with chalk, nor the wooden cylinders, answer in our usual shocks here. In one case, particularly, he had noticed a 9-inch pendulum in an upper room in his house swing with an amplitude of about 15 degrees, and was surprised to find no indications given by the above-mentioned instruments. In the most sensitive cylinder Mr. Mallet proposed, the proportion of diameter to height was 1.9, while, he (Mr. Knipping) found that a proportion of 1.20 for the same magnitudes was not sufficient here. It might be that not only the proportion but also that absolute dimensions had to be taken into account, and he intended to continue his experiments in that direction as also with other proposed instruments. Von Seebach added to the cylinders a ball put on the top of a firm column tapered at the top; the throwing down of the ball giving the angle of emersion at the station. The same author also recommended exact time observations at different stations, and

shewed that they alone would be sufficient to determine the principal features of an earthquake, viz., the position of the centre of focus, the velocity, and the direction of the wave. A simpler method than the observation of the time shock at any station could not be well imagined, but as it was not easy to find the exact time by astronomical observations within a few seconds (an error in longitude of 1 minute causing an error in time of 4 seconds), if very good instruments were not at hand, the time observations at stations connected by electric telegraph would undoubtedly give the most reliable results. If the gentlemen in the Telegraph Department, who had clocks and the telegraph wire at their disposal, would take the matter in hand, and have the clocks at fifteen or twenty properly selected telegraph stations daily compared, while each clock could be stopped by a cheap self acting arrangement, the exact difference of time might easily be found at all the stations. Even if the clocks had no second-hands, as was the case with those between Yedo and Yokohama, the time could easily be read to $\frac{1}{10}$ of a minute, and this would be sufficiently exact to investigate the more essential features of most of the earthquakes here. The expense would be trifling and the trouble of comparing twenty clocks once daily not worth mentioning after a few days practice. He hoped that the authors of the paper would soon be able to execute their proposed instrument and have it tried in earthquakes. Living in Tōkiō we were on an unusually favourable spot of the globe, having on an average one earthquake in a week, so that we never need wait very long to try earthquake instruments. In 1876 the Yamato Yashiki instruments recorded 53 shocks.

The discussion was further entered into by the Chairman and Messrs. Cawley, Perry, and Smith.

Prof. Smith closing it with a critical examination of some of the physical principles and mathematical formulas presented in the paper.

The Minutes of the last meeting were then read, and at a later hour than usual the meeting was adjourned.

THE EARLY STUDY OF DUTCH IN JAPAN.

BY

K. MITSUKURI.

*Read before the Asiatic Society of Japan,
on the 14th February, 1877.*



In looking back over our history, two or three hundred years, nothing is brighter to me than the brave efforts which a few determined men made in trying to unravel the mysteries of an unknown language and to put the medical science of their country on a true basis. Hideyoshi was brilliant, but, we have to admit, he was unprincipled. Ieyasu's legislation was able, but most selfish. We cannot help admiring the spirit of the Forty-seven Ronins, but we are far from wishing the tragedy repeated at the present day. Even the great peace, of which we are so proud, is more like the stillness of stagnant pools than the calm surface of a clear lake. But the men of whom we are to speak, I can praise from the bottom of my heart. They did what every noble mind aspires to : by their efforts, they left their fellow-men in a better condition than they found them. The more the world advances, the more highly will they be appreciated.

It was extremely fortunate that a faithful record of the interesting circumstances attending the introduction of Dutch into Japan, should have been left by one who was

a leading figure in accomplishing that end. "Rangaku Kotohajimé,"* the posthumous work of Sugita Essai, appeared, for the first time, in Yedo, nine or ten years ago. To me, few of the books which have been published of late, numerous as they are, have equal interest. It may not be altogether unwelcome, to some, to go over it briefly and have certain of its most important parts translated.

When the government of Iyeyasu found that the presence of foreigners in the country was not altogether disinterested, and that they would be the cause of more or less trouble all the time, it is well known what vigorous measures were taken. It is pitiful to read what despotism did then. Not satisfied with expelling foreigners and persecuting native Christians, it crippled almost everything that might, by the least possibility, be made the channel of communication with other countries. Ship owners were obliged to build a new style of vessels, unfit for navigating an ocean. Persons were forbidden to go out of the country, under penalty of death. It went even so far as to interdict the study of any foreign language. When Goto, a naturalist, issued a small volume on the Dutch, about the middle of the last century, its publication was instantly stopped, simply because it had the Dutch alphabet in it. Medical students in Nagasaki could only take down what the foreign physician imparted to them orally. Even interpreters were not allowed to study Dutch, but noted in *kana* what they heard. From what we know at the present day, we can imagine how imperfect and slow this way of communication must have been. The first efforts, on record, to study language systematically were not made until the Dutch had been in the country a hundred years. During the reign of the eighth Tokugawa Shogun, (1717-44) three of the interpreters in Nagasaki became convinced that the way in which business had been conducted was inexcusably careless, and that they at least, ought to be able to understand "crab letters." Their petition was readily granted by the government, and ever

* The Beginning of "Rangaku" or "The Study of Dutch."

after, they applied themselves assiduously to the study of the language. It is said that one of the three, Nishi, by copying over a "book of words" (*kunstwörter*) three whole times, astonished a Dutchman, who gave the book to him as a mark of his respect. This and several other circumstances were reported to the Shogun, whose curiosity was excited. He expressed a wish to see a foreign book. One was soon procured and the illustrations in it pleased him so much that he ordered Noro Genjo, an attending physician, and Awoki Bunzo, a *jusha*, to read its contents if possible. The two betook themselves to their task with all their energy, but with little success. All they could do, was to learn a little from interpreters when the Dutch came to Yedo, every spring, to pay their respects to the Shogun. After two or three years, they knew only the alphabet and a few words such as "sun," "moon," "star," "heaven," "man."

Such was the state of things, one hundred and fifty years ago, but a better time was fast approaching. The thermometer, camera obscura, weatherglass, glass works and other curiosities, began to be seen frequently and served to familiarize the people with the foreign articles. Every year, while the Dutch were in Yedo, an eager and inquiring crowd, our author among them, was always to be found at their quarters. Numberless questions were asked on medicine, natural history, and other kindred subjects. The author was once present when the Dutch physician bled a patient. He writes evidently in great admiration.—"The surgeon knowing exactly how far "blood will fly, put a vessel at some distance from the "patient. When blood began to flow it exactly went into "the vessel!" This was the first time bleeding was ever tried in Yedo. Another time, the Dutch "Captain" showed a puzzle-box to a curious audience, and promised that he would give it to any one who should open it. It went round from one hand to another but nobody seemed to succeed, until it came to Hiraga Gennai. He looked at it intently for a few minutes, and to the admiration of all present, easily opened it. This Hiraga was a thoughtful

man, well read in natural history, and often astonished the Dutch by his sagacity. The yearly visit of the foreigner must have been full of such incidents and, no doubt, did a great deal toward making the people accustomed to strange sights and objects.

We must hurry on, however, and make acquaintance with those who are to figure more conspicuously in this history. Of our author, I cannot, unfortunately, say much. From the meagre accounts I can gather from the book, Sugita Fusai was born in Yedo early in the eighteenth century. He was well educated and followed the profession of his father, medicine. He lived in Hama Cho, where, I believe, his house was standing till lately. Mayeda Riotsaku was his senior by ten years, and was, like him, a physician, serving under the *daimio* of Nakatsu, in the province of Buzen. Mayeda was left an orphan while very young, and was brought up by his uncle Miyada. This Miyada was almost eccentric in his disposition. He held it to be a solemn duty to learn any art or accomplishment that might be going out of the world, and then describe it so fully that it might be preserved to posterity. Young Riotsaku was faithful to his instructions. Though following medicine for his profession he took it upon himself to learn "hitoyogiri," a certain kind of music which was well nigh forgotten, and even went so far as to study a kind of dramatic acting. It was then no wonder that this man's attention should be drawn to the study of Dutch. He once happened to see a book in that language, and began to think, that, though country and idioms might be different, there was no reason why one part of the human family could not understand what another might think or write. He soon learned the alphabet and a few words from Awoki, before mentioned. But not satisfied with those, he went down to Nagasaki, sometime afterwards, and there succeeded in collecting about seven hundred words besides obtaining a great deal of information about his own profession. The author writes :

I do not remember exactly when it was, but early in the period of Meiwa (1764-7) one spring when the Dutch had come as usual to pay

their respects to the Shogun, Riotaku (Mayeda) came to my house, and on my inquiring whither he was bound, said that he was going to the Dutch quarters, to have a talk with the interpreter, and if he favoured it, to begin the study of the language. I, being young yet, and full of spirit, was quite taken with the idea, and asked permission to go with him, to which he readily consented. When we arrived at our destination, we laid our plan before Nishi Zenzaburo, the chief interpreter of the year. After hearing what we had to say, he replied, discouragingly: "It is entirely 'useless for you to try. It is not by any means an easy thing to 'understand their speech. For instance, if we want to ask what 'drinking water or wine is, we have no means but to begin by 'gesture. If it is wine, we first imitate pouring wine in to a cup, 'and then, lifting it up to the mouth, ask what that is. They 'will say 'Drink.' But when we wish to know what drinking 'much or little is, we have no means of asking. * * * * I 'was born in a family of interpreters and have been used to these 'things all my life. Yet I am fifty years old now, and I under-'stood, for the first time, the meaning of the word 'To like,' in 'this journey. * * It is by such a tedious process, that even 'we, who see the Dutch every day, have to learn. You who live 'in Yedo, must not hope to do much. For this reason two gentle-'men, Awoki and Noro, who apply themselves very hard, cannot 'make any progress. It is by far the best for you not to begin at 'all." I do not know (the author continues) what Riotaku thought, but I gave up entirely the idea of undertaking such a troublesome task."

But, fortunately for Japan, fate decreed otherwise. Another friend of the author, Nakagara Kiowan, also a physician, serving under the same *daimio* as himself, being interested in the products of different countries, was a constant visitor at the quarters of the Dutch, whenever they appeared in Yedo. It was in 1771, one day, the interpreter showed him two Dutch books on Anatomy which were for sale. He took them home, and among those who saw them was our author. Sugita could not, of course, read a word, but was struck by the fact that the illustrations of bones and organs represented them to be very different from what he had believed them to be. He wished to buy the books but was too poor. Fortunately, however, he succeeded in persuading a karo (councillor) who, by his influence, had the price paid from the public treasury of the *daimio*. Ever after this, Sugita longed for the opportunity to test which of the theories was correct.

He had not to wait very long. As good luck would have it, he was invited, shortly afterward, to a dissection

which was to take place in the execution grounds of Kozukappara. Such a thing was of rare occurrence at that time and Sugita was not the man to enjoy it by himself. He knew that several of his friends, among others Nakagawa Kiowan and Mayeda Riotsaku would be very glad to avail themselves of such an opportunity. He must let them know by all means, so he wrote to them though it was somewhat difficult to do this, and appointed a place to meet, next morning.

The anxiously expected day came, and all were promptly at the rendezvous. Mayeda had with him a Dutch book† on Anatomy, which he had bought in Nagasaki some time before, and when they came to examine it, it proved to be the same as one of those which Sugita had been fortunate enough to procure lately. They were soon in Kozukappara, the famous execution grounds near Asakusa. The hour for which they had longed had actually come. They were about to know whether the things they and their fathers had believed in, were right or wrong. I can imagine how their hearts must have beat. The dissection was performed by an old executioner, an *eta* who had had some experience in this line. The result is soon told. They of course found that their theory was entirely mistaken, and the way in which the illustrations in their new books coincided with real objects, raised their admiration to a high degree. On the way back, Mayeda, Nakagawa and Sugita were together. The events which had taken place of late must have seemed to them as if they had been pre-arranged. How fortunate that Nakagawa should happen to see those books, that Sugita should be able to buy them, that they should have a chance to test their doubts! And what a

† I have the pleasure of knowing a descendant of Mayeda. He once showed me a book which belonged to his illustrious ancestor, and which, I believe, was this very Anatomy mentioned above. It was carefully kept in a box of kiri (name of a kind of wood), wrapped in a purple *fukusa*. It was, I should say, about 4 inches by 6 in breadth and length, and 2 in thickness. My friend told me that it cost 200 *rios*, and as Mayeda was too poor to buy it, he had the cost paid at the expense of his *daimio*, of whom he seems to have been a favorite, and who seems to have appreciated him fully. The book was yellow with time, and looked as if it was not worth a quarter of a dollar.

coincidence that Mayeda should possess the same book! As they walked home, they talked earnestly. Shame that they should have lived all their lives as physicians, and not know, till now, the construction of the human body, on which the science of medicine was necessarily founded! If they could understand the true principle of Anatomy from the real objects they had just seen, if they could translate this book, which they had obtained so luckily, they would do an immense service to the country, and would not have lived in this world in vain. So they went on, and when they separated for the night, they had come to the agreement that they would try their best to master the strange language, and that as such things were the better, the sooner begun, they would commence the very next day. They had set before them a hard task, but they were determined to accomplish it. As they parted, their hearts were perhaps too full to speak, but they must have shaken hands most heartily if such a thing had been known then.

According to promise, the three met in Mayeda's house, and talked over what had passed the previous day. They opened the Anatomy before them, but it was like managing a ship out in the ocean, without a rudder, to use the author's figure. They did not know what to do. Mayeda, however, having had his mind set on the subject for a long time, had already acquired the alphabet and a few hundred words, as stated before. So he was chosen the leader and the other two undertook to learn from him what he knew. This was soon done, and now they proceeded to the book. The way in which they started is interesting. There was in the book a chart of the exterior of a whole human body, giving the names of different parts. Now they, knowing the corresponding Japanese names, could compare them together and thus get at least a foothold which might enable them to proceed from the exterior to the internal construction of the body. The author says:

At that time, we did not know anything about such auxiliary words as *de*, *het*, *als* and *welke*, and therefore, though we might occasionally meet with words that we knew, we could not make any connected sense out of them. For instance, such a simple sentence as

"the eyebrow is hair growing a little above the eye" was all confusing, and we had to spend a long spring day, even till dark, thinking and thinking, as hard as we could. One day, when we came to the nose, it said that it was the thing that is *verheven*. We did not then have any dictionary, but in looking over the list of words which Riotsaku and brought from Nagasaki, it said that the tree is *verheven* when a branch is cut off, and also that when a garden is swept and the dirt put together it is *verheven*. As usual, we fell to thinking but could not make it out. A bright thought came to me that when the tree whose branch has been cut off, heals, the place is slightly elevated, and again that the dirt accumulated will, of course, be "elevated." Then the word—must mean "elevated." All agreed that this was quite reasonable and decided that *verheven* should be translated "elevated." The feeling of joy which I experienced then, cannot be told. I felt as if I had obtained a whole castle full of precious stones.

It was by such a process that they made their way inch by inch. They had their meetings six or seven times in a month, and strange to say, in a little over a year they became able to go over ten lines of coarse print in a day. At times, they attended a dissection, or saw for themselves, by cutting open animals. In two or three years, they began to enjoy their work so much that they waited for the day of meeting "as a child would for a holiday." Such men as Katsuragawa were also added to their number, and their undertaking began to be well known.

It is interesting to note the object which each had in view. Mayeda, to whom all looked up as to a leader, was inclined toward Literature. His ambition was to be able to read any book and to acquaint himself with the affairs of Europe. He wished to devote himself entirely to this study. He shunned society and quietly enjoyed himself in working on what he desired to accomplish. The *daimio* of Nakatsu, a rare man among his class, appreciated him fully, as I said before, and encouraged him in various ways. Nakagawa Kiowan was interested in the products of different countries, and those he wished to know, through the channel of Dutch. He died about 1781, not quite fifty years old, a little after they got through their first book. Sugita, our author, was more practical. He had found that what had been believed in regard to Anatomy, in Japan, was erroneous, and wished to rectify it. He

wished to apply the true principles to practical use as soon as possible. The quicker, therefore, he made out anything that could be seen by the world, the better. He illustrated his purposes by a simile. "It is beautiful to see threads of "all five colors† twisted together, but I resolved to confine "myself to a single color, as yellow or red, and let the rest "go." After every meeting, he wrote down what had been read that day. It was a difficult work, certainly. He was the first one who ever tried translating, and he had to settle a great many points that necessarily come up in such a task. After four years, changing the manuscripts one way or another, and copying them over eleven times, he finally succeeded in having a work on Anatomy ready for publication. He had at first doubts about the safety of issuing it. A book had been suppressed, simply for having the Dutch alphabet in it. It was possible that something might be done to his. Persons had been imprisoned for writing books. He, however, determined to sacrifice himself to the cause of his profession, if need be. But a better time was come, and not only was his book left untouched, but he even succeeded in presenting a copy to the Shogun, and several to men of power and influence in the country. Before Sugita died, he was honored with an audience by the Shogun, a rare distinction indeed.

As time went on, the study of Dutch spread far and wide. Scholars flocked to Mayeda, Sugita, etc., from all parts of the country. Some of them, as Otsuki, Ogata, and Udagawa are known by every body, and they did great service to the country. Books were exceedingly rare at that time, and students had to copy them. I have seen volumes upon volumes of manuscripts, neatly and carefully written, representing an immense amount of patience and labor. The privations and hardships which poor students went through in those old times, are almost incredible, and are often told to stir up lazy scholars of the present day. It is to be hoped that some of those

† Blue, yellow, red, white and black were the primary colors of Japan.

living now, who have gone through those hard trials may write their memoirs, and thus leave a true history of their young days.

Such, in brief, was the way in which the language of Holland came to be studied in Japan. It is a chapter of our history worthy of a far better chronicler than myself. The good that came out of it is incalculable. For a long time, it was the only channel through which outward thoughts could be brought to the Japanese mind. It was through this that the medical science of Japan was put on a true foundation. It was through this, that something of the laws of nature came to be known. It was through this, that the history of Europe, in fact, of the world, was understood. Above all, if this had not somewhat prepared the public mind, we should not now be taking advantage of facilities which free intercourse with other countries has opened to us. Many of the men who have been leading figures in our country, the last ten years or so, belonged to this school. Fukuzawa, the teacher and author, Tera-shima, the well-known Minister of the Foreign department, Murata Zoroku, the Minister of War during the Revolution, Yanagawa, the founder of Japanese journalism and many others whom I might mention, have all been students of Dutch. The work which those three accomplished at first was no doubt imperfect from a modern point of view, but it is one of the things of which I am proud in the history of our country.

TRANSACTIONS
OF
THE ASIATIC SOCIETY
OF
JAPAN.

VOL V.-PART II.

(Reprint of the Original Edition of 1877: Edited by the Council.)

A SUMMARY OF THE JAPANESE
PENAL CODES,

BY

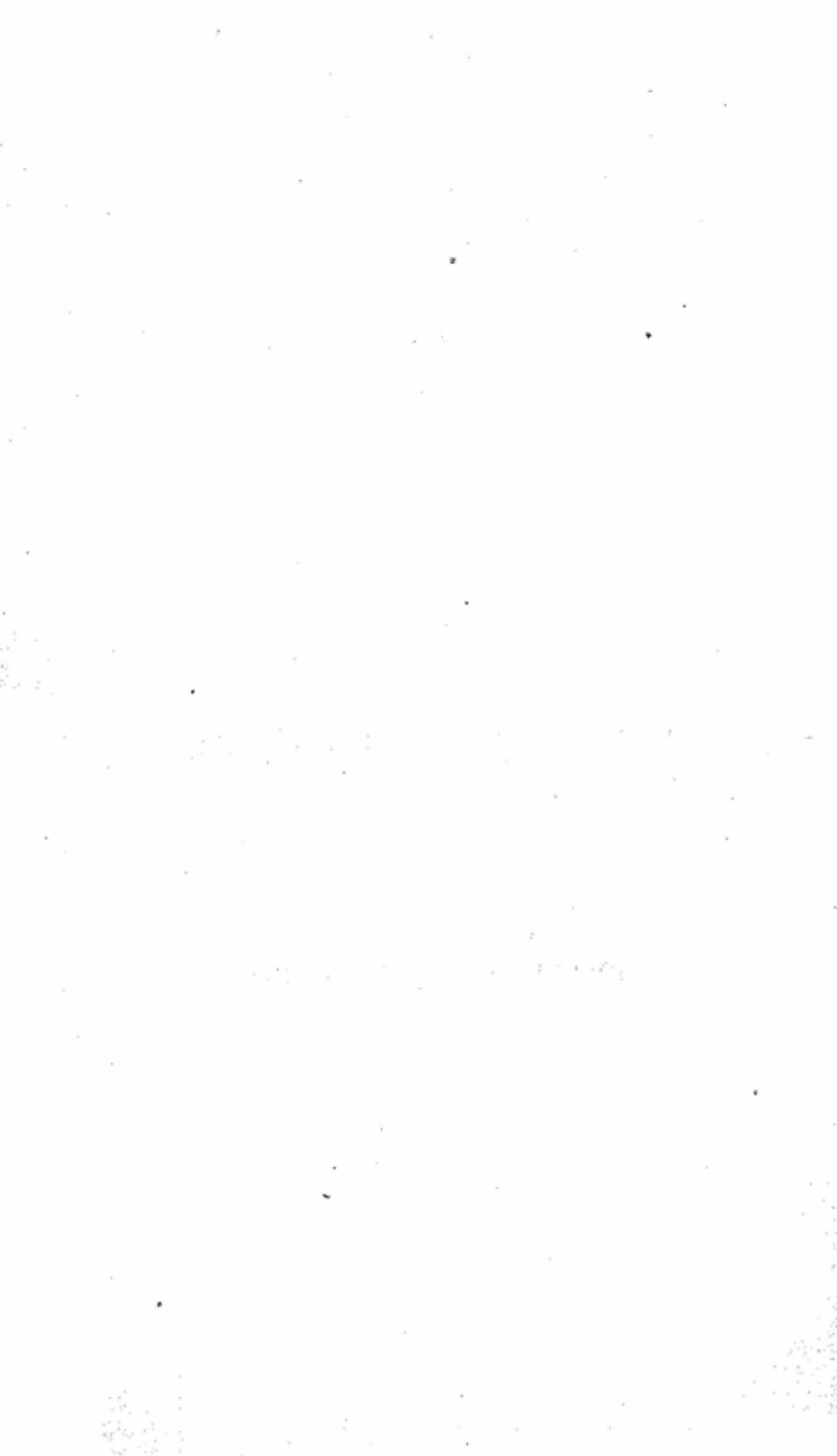
JOSEPH H. LONGFORD, Esq.,

H. B. M. Legation.

*Read before the Asiatic Society of Japan, on the
28th February, 1877.*

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1888.



P R E F A C E .

WHEN I commenced the preparation of the following Summary, it was my intention to endeavour to convey within the ordinary limits of the papers read before the Asiatic Society a general idea of the Japanese Penal Codes, by giving a short sketch of the plan and system on which they are founded, and translations of the more important laws contained in them and of those which showed the points wherein Japanese criminal law differed most widely from that of England and other European countries. I found, however, that the manner in which all the laws in the Codes depend one upon the other rendered it necessary, in order to arrive at a correct apprehension of the penalties with which any transgression of them is to be visited, to have a knowledge not only of the law immediately applicable to the particular transgression, but of many preceding or following it, and either explanatory of references in it or providing aggravations or mitigations of punishment in the case of particular classes of offenders, or in consideration of particular circumstances connected with the offence. It seemed hopeless, therefore, to attempt to convey a correct understanding of the Codes without giving either a complete translation of them or else a summary, which, though curtailed by the omission of everything tending towards repetition, by the re-arrangement of the laws in such a way as necessitated the smallest possible number of references and explanatory notes, and by making such *précis* of them as

the marked conciseness of the language admitted without falling into obscurity, would still contain a notice of all the laws in the Codes that are at present in force and of the provisions in them necessary for arriving at a proper appreciation of their spirit and principle. The latter course is the one which I have endeavoured to carry out, and though a summary compiled in the way I have described must necessarily be of a very imperfect nature, I trust that the following will nevertheless be sufficient to render intelligible to those referring to it any judgments of the Japanese Criminal Courts brought before the attention of foreigners. It will thus, perhaps, serve a useful purpose, until such time as a complete translation of the Codes may be published, by preventing much of the unfavorable criticism with which those judgments are now often visited, and which is in many cases only to be ascribed to an entire want of knowledge of the principles on which they are based.

J. H. L.

Yokohama, March, 1877.

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A SUMMARY OF THE JAPANESE PENAL CODES.

BY

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*Read before the Asiatic Society of Japan, on the
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—O—

The Criminal Laws of Japan as they stand at present are comprised in two codes, respectively entitled the "Chief Points of the New Fundamental Laws" and "The Revised Fundamental and Supplementary Laws," both of which have been compiled and enacted since the Revolution. Under the Shōgunate the whole criminal jurisdiction of the country was nominally administered according to the laws contained in the two Chinese codes known as the Ming and Tsing, but as the several territorial magnates had from time to time modified and altered these codes at will, the mode of their administration differed in almost every province. The attention of the Mikado's Government was therefore early directed to the subject, a commission was appointed to enquire into it and to draw up a code that would be applicable to the whole Empire, and the result of their labours was the code which I have first mentioned and which was published in January 1871. It is simply a selection from the two Chinese codes of the laws which were considered to be most applicable to Japan, large modifications being, however, introduced into the amount and nature of the punishments prescribed in them for different offences. These punishments had been of the most cruel and rigorous severity; death was inflicted for almost trivial offences and no other method was known of punishing heinous crimes save by accompanying that death

with tortures of the most painful description. The Commissioners who draw up the new code, however, recognizing that the true principle of punishment existed not in extreme and vindictive severity altogether disproportioned to the gravity of the offences, but in the certainty of the infliction of that punishment, entirely eliminated from the (2) new code those barbarous modes of execution which had characterized the old, largely curtailed the crimes for which death was enjoined as the penalty, abolished merciless and excessive whippings, and for the majority of offences prescribed the punishment of imprisonment with corrective labour, or in other words penal servitude.

The second code which I have mentioned was notified by an Imperial Precept published in May 1873. By it many of the laws contained in the first were abrogated or amended, new ones which experience had shown to be necessary were added, and further proof given of the humane feelings by which the Government was actuated by the still further curtailment of the crimes punishable by death, and by the almost total abolition of corporal punishment. What I now purpose to lay before the Society is a summary compiled from these two codes of the Criminal Law of Japan as at present constituted, and I am induced to do so because I am not aware that this subject has as yet found a place among those that have from time to time been brought before the attention of the Society, and because it is one of interest, not only to the student, but in some degree also to every foreigner resident in this country.

The "Chief Points of the New Fundamental Laws" consist, in addition to a preface containing certain tables and preliminary matter, of five volumes subdivided into 192 sections, and the "Revised Fundamental and Supplementary Laws"* are comprised in two volumes containing 318 consecutively numbered sections, there being as in the first code also some tables and preliminary matter. These

* The two codes are hereafter respectively referred to as the "New Code" and the "Revised Code."

sections are again in both cases grouped into 13 chapters of different length, headed respectively :—

- 1.—General Laws.
- 2.—Domestic Law.
- 3.—Robbery and Theft.
- 4.—Homicide.
- 5.—Quarrelling and Fighting.
- 6.—Abusive Language.
- 7.—Indictments and Informations.
- 8.—Bribery and Corruption.
- 9.—Forgery and Fraud.
- 10.—Rape and Adultery.
- 11.—Miscellaneous Offences.
- 12.—Arrest.
- 13.—Judgment and Imprisonment.

(3) The first chapter contains the laws describing the regulations under which the punishments specified in the remaining twelve chapters are to be inflicted. Every crime known to Japanese law, with the exception of such offences as are in contravention of the Press-Laws, Railway Regulations, etc., which are provided for in special statutes, is separately treated of in one or other of these twelve chapters, the circumstances which are to be taken into consideration in convicting a prisoner being minutely described, and the punishment which is to be inflicted on him on conviction precisely stated in each case, authority being, however, given to the judge to make certain mitigations in these punishments whenever he thinks the circumstances of the case call for the exercise of clemency.

I will now separately summarize these chapters in the order in which they occur.

CHAPTER I. GENERAL LAWS.

(4) The first and second volumes, containing forty sections of the 'New Code,' and one hundred sections of the first volume of the 'Revised Code' treat of the "General Laws." These may be divided into three classes devoted severally to—I. Punishments: II. Special cases in which the statute punishments are to be increased, mitigated, compounded by the payment of a fine, or altogether remitted according to the aggravating or extenuating circumstances of each case, and the rank, age and sex of the offender: III. Definitions of Legal Terms that occur in the body of the codes, and Miscellaneous Provisions.

CLASS I,—PUNISHMENTS.

Revised Code, There are twenty degrees of punishment—
Sec. I-IV, namely penal servitude for a period of 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100 days, or for one of 1, 1½, 2, 2½, 3, 5, 7, or 10 years, or for life,—there being no intermediate period between that of 100 days and 1 year, or between that of 10 years and that for life—and death. An offender sentenced to a term of penal servitude is to be placed in the penitentiary or convict depôt of the district in which he has been tried and sentenced, and work suited to his age, physical condition, and acquirements is to be allotted to him, so that "by toil and labour he may be gradually brought to repent of his past misdeeds and be restored to virtue." A certain portion of the value of all work done by him is to be placed to his credit in the prison books, and given to him on his discharge at the expiration of his sentence, (5) in order to serve as a capital to enable him to

gain an honest livelihood. The punishment of death may be inflicted either by hanging or decapitation, the latter form being considered the more severe, and accompanied in a few instances where the crime is of a very heinous nature—such for example as that of parricide—by the disgraceful addition of exposure of the head after death. The body is always to be handed over to any relatives who may apply for it, but it must be buried without religious ceremony of any kind, and the headstone must contain nothing save the criminal's name and date of death. A government notice recording the punishment and the crime for which it has been inflicted is always to be erected, both in the district in which the criminal has been tried and executed, and in his native place.

Every crime treated of throughout the code is punishable by one of the above periods of penal servitude or by death, but there are certain cases in which the punishment of pillory—which consists of placing the offender in iron stocks in the prison yard—is to be substituted for one of the shorter periods of penal servitude, and there are others again in which the punishment of imprisonment unaccompanied by hard labour—which is called a supplementary (lit. intercalary) punishment—is to be inflicted instead of that actually provided in the statute.

Imprisonment without hard labour may, according to circumstances, be undergone either in the offender's own house, he being closely confined in one room and no communication of any kind allowed with outsiders nor any egress or ingress except on the part of domestics conveying daily necessities, or else in the ordinary penitentiary of the district, in which case the offender is to be kept apart from other prisoners, allowed to wear

New Code,
"Supplementary
Punishments."
Revised Code,
Sec. 13.

his own clothing, and have his own food brought into the jail, as well as other privileges. This punishment, the periods of which are similar to those of penal servitude, is the one to which all (6) persons of the rank of *samurai* are to be sentenced for crimes which are not considered of a very disgraceful nature, such as robbery, unlawful sexual intercourse, etc. *Samurai* who commit crimes of this latter class are to be considered unworthy of their rank, and are to be punished accordingly by being deprived of that rank and reduced to the level of commoners; and, if their crime be such that a commoner would for committing it have been liable to any punishment exceeding penal servitude for 1 year, they are, in addition to the degradation, to undergo the statute punishment. This distinction may be best explained by an example. A commoner, who is guilty of an ordinary assault, is punished, as will be seen hereafter, by penal servitude for 20 days; a *samurai*, this not being considered a very disgraceful crime, by imprisonment without hard labour for a like period. A commoner, again, who commits embezzlement of a sum not exceeding 20 yen is punished by penal servitude for 90 days; a *samurai* by degradation unaccompanied by any other penalty. If, however, the sum embezzled exceed 40 yen, both *samurai* and commoner are to be punished by penal servitude for one year or longer, according to the amount, the *samurai*, as in the first case, also undergoing degradation. There is no supplementary punishment of death, and in all cases therefore, excepting of course those in which the crime is of a very disgraceful nature, where death is provided in the law as the penalty for any offence, imprisonment for life is to be substituted if the offender be a *samurai*.

Noblemen and officials of the two higher grades are to be treated as *samurai*, with the addition that in their case a full report is to be made to the Emperor, and His Majesty's will inquired before any proceedings are taken. When either a nobleman or *samurai* is degraded, any life pension or grant which he enjoys as a reward for previous services is to be confiscated, but a hereditary pension is to be continued to his legal heirs, and the degradation is not to extend to the latter.

Revised Code,
Sec. 11.

Revised Code,
Sec. 14.

CLASS II,—SPECIAL CASES.

The second class of the General Laws describes those cases in which a special routine is to be adopted on account of the rank of the offender, and also those in which the statute punishments are to be increased, mitigated, compounded by a fine, or altogether remitted on account of the circumstances incidental to the offence being aggravating or the reverse, or according to the age and sex of the offender.

OFFICIALS.*

Officials of all grades committing any "private offence" or any wilful and deliberate offence

New Code,
"Private Offences of Officials."

* Persons in Government employment are either "Classed" or "Unclassed" officials. The Unclassed officials comprise only the copyists, servants, messengers and others employed in subordinate capacities in the public offices. Classed officials include all who are employed in responsible capacities and have a definite rank. They are divided into seventeen grades, numbered consecutively 1 to 17. All who belong to one of the first three grades receive their appointments direct from the Emperor and are therefore called "Officials of Imperial Appointment." All the Ministers and Vice-Ministers of the Public Departments, the Councillors of State, etc., come under this category. Those who belong to the fourth, fifth, sixth, or seventh grade receive their appointments from the Council of State and are therefore called "Officials of Government Appointment." The Secretaries, Acting Secretaries, Assistant Secretaries, and Acting Assistant Secretaries of the Public Departments, and Provincial officials of corresponding rank come under this category. Classed officials of any of the remaining ten grades receive their appointments from the head of the Public Department to which they are attached, and are therefore called "Officials of Departmental Appointment." They are entitled *Attachés*—an official of the eighth grade being an "Attaché of the first rank"—an official of the ninth grade an "Attaché of the second rank," etc.

Revised
Code, Sec. 13.

during their period of office, or, if, though the offence be antecedent, the discovery be only made subsequent to their entering office, shall be punished by the infliction of a fine, calculated according to the following table, in lieu of the term of penal servitude that is provided in the statute applicable to the offence. Where, however, the offence is such as would render a commoner liable to a sentence of penal servitude for one or more years, officials are to be dealt with in the manner that has been already described as the one to be adopted in the case of *samurai*, their official brevets being confiscated where the *samurai* would have been degraded. The term "private offence" is the literal translation of that which is contained in the original. It includes all cases of criminality on the part of officials where the offender's liability to punishment does not arise from his official responsibility, and is opposed to the term "public offence" which was used to describe a class that has been recently abolished, in which the offence consisted either of a dereliction or violation of official duty. Examples of this latter class of offences were "Failure to make proper reports to the Emperor," "Destroying or injuring official documents," "Wilfully absenting one's-self from duty," "Failing to attend at the Palace on necessary occasions," etc., etc. The provisions in this law apply also to the parents, brothers, and children of a commoner holding office provided he be the head of the family.

Revised
Code, Sec. 25.

TABLE.

| <i>Punishments to which Commoners would be liable.</i> | <i>Fines which shall be paid by Officials for similar offences.</i> | | | |
|--|---|---|---|--------------------------------------|
| <i>Penal Servitude.</i> | <i>Officials of Imperial Appointment.</i> | <i>Officials of Government Appointment.</i> | <i>Officials of Departmental Appointment.</i> | <i>Unclassed Official Employees.</i> |
| 10 days | 4 yen | 3 yen | 2 yen | 1½ yen |
| 20 " | 8 " | 6 " | 4 " | 3 " |
| 30 " | 12 " | 9 " | 6 " | 4½ " |
| 40 " | 16 " | 12 " | 8 " | 6 " |
| 50 " | 20 " | 15 " | 10 " | 7½ " |
| 60 " | 24 " | 18 " | 12 " | 9 " |
| 70 " | 28 " | 21 " | 14 " | 10½ " |
| 80 " | 32 " | 24 " | 16 " | 12 " |
| 90 " | 36 " | 27 " | 18 " | 13½ " |
| 100 " | 40 " | 30 " | 20 " | 15 " |

CLERGY.

Beneficed clergy though by birth commoners are to be treated as *samurai*, and as *samurai* are degraded so they are to be unfrocked for peculiarly disgraceful crimes and for violations of clerical law. Unbeneficed clergy are to be treated as commoners.

New Code,
"Beneficed Clergy." Revised Code, Sec. 25.

NAVAL AND MILITARY OFFENDERS.

(9) Persons in the naval and military services are in all cases to be tried and punished by their own authorities, even for civil offences.

Revised Code, Sec. 27.

MAGISTERIAL AND POLICE OFFICERS.

Magisterial and Police Officers accepting bribes, or appropriating any property that may come into their hands in the course of the discharge of their duty, are to be sentenced to a punishment two degrees heavier than that which is to be inflicted on any other person

New Code,
"Offences of Mag. and P. Officers." Revised Code, Sec. 29.

for an offence of similar description, even though the discovery of their guilt may be subsequent to their ceasing to hold office.

INDULGENCES TO COMMONERS.

New Code,
"Commoners
on whom sen-
tences are not
to be carried
out."

Commoners deserving of leniency on account of their having become implicated in a crime through mistake or inadvertency, or of their being of advanced or tender years, maimed or deformed, * or of the female sex, are to be allowed to commute the period of penal servitude to which they would have been otherwise liable by the payment of a fine, according to the following Table:—

| | | TABLE. | |
|---|-------|--|---|
| <i>Ordinary Punishment, Penal Servitude for</i> | | <i>Fines to be paid by persons accidentally or inadvertently im- plicated.</i> | <i>Fines to be paid by persons of ad- vanced or tender years, maimed or deformed persons, and by females.</i> |
| 10 days | ..... | 0.75 <i>sen</i> | 0.25 <i>sen</i> |
| 20 " | ..... | 1.50 <i>yen</i> | 0.50 " |
| 30 " | ..... | 2.25 " | 0.75 " |
| 40 " | ..... | 3.00 " | 1.00 |
| 50 " | ..... | 3.75 " | 1.25 " |
| 60 " | ..... | 4.50 " | 1.50 " |
| 70 " | ..... | 5.25 " | 1.75 " |
| (10) 80 days | ..... | 6.00 | 2.00 |
| 90 " | ..... | 6.75 " | 2.25 " |
| 100 " | ..... | 7.50 " | 2.50 " |
| 1 year | ..... | 15.00 " | 3.00 " |
| 1½ years | ..... | 22.50 " | 4.50 " |

* These terms are of constant occurrence throughout the Codes. A maimed person is one who is permanently crippled by one of the limbs, or the backbone being broken; a deformed person one who is suffering from any permanent and incurable disease or infirmity, such as leprosy, or who is permanently crippled by both of the legs or arms being broken, or who is blind of both eyes.

| | | | | | | | |
|-------|---|-------|--------|---|-------|-------|---|
| 2 | „ | ..... | 30.00 | „ | ..... | 6.00 | „ |
| 2½ | „ | ..... | 37.50 | „ | ..... | 7.50 | „ |
| 3 | „ | ..... | 45.00 | „ | ..... | 9.00 | „ |
| 5 | „ | ..... | 60.00 | „ | ..... | 15.00 | „ |
| 7 | „ | ..... | 70.00 | „ | ..... | 21.00 | „ |
| 10 | „ | ..... | 80.00 | „ | ..... | 30.00 | „ |
| Life |  | ..... | 90.00 | „ | ..... | 35.00 | „ |
| Death |  | ..... | 100.00 | „ | ..... | 40.00 | „ |

If a commoner sentenced to pay a fine of the first of the above classes is not able to do so on account of poverty, the ordinary punishment is to be inflicted with the exception that, if it be that of death, penal servitude for life is to be substituted.

Revised
Code, Sec.
30.

In the case of those unable for a similar reason to pay fines of the second classes, half the ordinary punishment is to be inflicted if the full term do not exceed 100 days. If it does the term is to be mitigated five degrees. The indulgence of

Revised Code,
Sec. 31.

punishment by infliction of a fine calculated according to the second class in lieu of penal servitude is also to be extended to commoners who have aged, maimed or deformed parents, or

Revised
Code, Sec.
35.

grandparents with no other relative above 16 years of age on whom to depend for support save the offender. If the full period of the ordinary sentence would not have exceeded 100 days, the

Revised
Code, Sec.
38.

whole may be commuted in this way, but, in the case of more serious offences, the offender is to be put in pillory for three days and allowed to commute only the balance of the punishment.

Pillory for three days is to be considered as equivalent to penal servitude for 100 days, and thus an offender coming under this category and guilty of an offence which would otherwise have rendered him liable to undergo penal servitude for one year, would be punished by three days' pillory and a fine of 50 *sen*, the fine being increased by 3 *yen* for each additional period of one year

that the greater magnitude of the offence would have involved. This indulgence is not to be allowed in the event of the repetition of an offence, nor in any offence involving capital punishment.

FEMALE OFFENDERS.

Women who commit offences which violate filial piety,* or who are guilty of theft, unlawful sexual intercourse, homicide or incendiarism, are in all cases to undergo the punishment prescribed by the several laws applicable to those offences, but all other offences may—unless an exception is specially made—be commuted by the payment of a fine calculated according to the above table.

Revised Code, Sec. 40. Women of the rank of samurai are to undergo imprisonment in their own houses instead of penal servitude, except the term exceed one year, when they are to be dealt with in the ordinary way.

PRISONERS COMMITTING SECOND OFFENCES.†

New Code, "New offences by convicts." Persons, already in custody for a previous offence, who, before their sentence has been pronounced, are guilty of a second offence, shall only undergo the punishment due for the more serious of the two. If, however, the second offence is committed after the legal sentence has been pronounced in the case of the first and while the prisoner is undergoing punishment, additional penalties are to be imposed according to the following system. If the period of the first sentence do not exceed 100 days and the second offence committed before the expiration of the first also involves a sentence not exceed-

* Such as assaulting or using abusive language to parents, disobeying their lawful commands, &c.

† Frequent illustrations of the application of this law are afforded by the sentences passed on newspaper editors.

ing that period, then the full term of both sentences must be undergone. If, however, the second offence involve a sentence of penal servitude for one or more years, then the balance of the first sentence shall be remitted and the second take effect forthwith. If the period of the first sentence exceed one but not three years, the full legal punishment for (12) any second offence shall be added to that of the first. The full period of both must, however, not exceed four years, unless that applicable to the second offence is of five or more years, in which case it is to be imposed in full and take effect forthwith, irrespective of the time the offender may have already been in prison on account of his first offence.

If the period of the first sentence be five or more years a second offence of an equally serious nature shall involve an addition of four years to the first. If, however, the second offence involve punishment for a period varying from one to three years then only half this period is to be added to that of the first sentence, though if the legal period prescribed for the second offence do not exceed 100 days, it is to be added in full to that of the first. The time occupied by the trial of an offender for any offence committed during the period of his punishment is not to be computed as part of his first sentence, unless he may be finally acquitted of the second charge.

AGED AND YOUTHFUL OFFENDERS.

Persons of advanced or tender years—that is above seventy or under fifteen years of age—and also maimed and deformed persons are to be allowed to commute, by the payment of a fine according to the table already given, any punishment to which they may render themselves

New Code,
"Fines on
Aged,
Youthful and
Decrepit
Offenders.
Revised
Code, Sec.
45, 46, 48.

liable except that of death, and in the case of maimed persons those prescribed for rape or violent robbery.

Persons above eighty or under ten years of age or deformed persons, shall not be liable to punishment for any offences of which they may be guilty other than those of theft or wounding, and they are to be allowed to commute the usual penalties for these crimes by the payment of fines according to the table. Persons above ninety or under seven years of age are not to be held responsible for any offences whatsoever that they may commit, even if it be that of murder, but any person who may be convicted of having instigated (13) them to the commission of an offence shall suffer the full legal punishment for it, just as though he himself had actually committed it.

Persons of the first of the above three classes repeating an offence, for the first commission of which they have already been allowed to commute their punishment by the payment of a fine, shall have the same indulgence again extended to them, unless the offence be one, a repetition of which involves an increase of severity in the degree of punishment. In this case they shall only be permitted to commute the additional degree of severity, and the balance of the legal punishment shall be inflicted as though on an ordinary person committing the crime for the first time. A third commission of an offence shall render them liable to the punishment that an ordinary person would have suffered for a second. All the above indulgences are to be allowed to persons who, though neither of advanced years nor maimed or deformed at the time they may have committed a crime, become so before its discovery or before the expiration of their sen

New Code,
"Offenders
not yet old
or decrepit."

tences, and also to those who though of tender years at the time of the commission of an offence, have advanced to manhood before its discovery.

PRINCIPAL AND ACCESSORY.

An all important principle in Japanese law and one applied to all cases except where special exception is made, is the distinction of Principal and Accessory that is to be drawn between the parties to the commission of an offence. The Principal is he who originates the idea of committing an offence, and he is to suffer the full punishment prescribed in the law applicable to it. The Accessory is he who joins with the Principal in carrying out the crime suggested by the latter, and he is to suffer punishment one degree less in severity than that prescribed by law, and this remission is to be made even though the accessory may have been equally or more active than the principal in the actual commission of the (14) offence. A further remission of one degree of severity is to be allowed where an accessory afterwards gives information of the crime, even though such information may have been consequent on his learning that it was about to become divulged from other sources. In the cases of offences other than theft, bribery whether for a lawful or an unlawful object, fighting and quarrelling, homicide and wounding, where the parties to the offence are all members of one household, the head of the house shall alone be punished, unless he be over 80 years of age or maimed or deformed, in which case their punishment shall fall on the head of the house next in succession, or, unless the head be a female, in which case the senior male member of the household shall also undergo punishment.

New Code,
"Accumulated
Remissions of
Punishments."

New Code,
"Principal and
Accessory."
Revised
Code, Sec.
71.

Where different laws are applicable to one offence committed by two or more persons, both principal and accessory shall be punished according to the laws that may be severally applicable to their individual cases. For example, if a man procure a stranger to join with him in striking his elder brother, the former shall be punished as Principal in the offence of assaulting Family Seniors by the penalties contained in the law of Assaults on Relatives,—the latter as Accessory in the offence of assaulting ordinary persons.* Again, if a stranger procure a member of a family to join with him in stealing the family property, the former shall be punished as being the principal in a robbery, the latter as accessory in the crime of wasting the family property, the law on which is contained in the chapter entitled "Domestic Law."

OFFENDERS WHO VOLUNTARILY CONFESS THEIR CRIMES.

New Code,
"Voluntary
Confessions."

A criminal, who, before his crime has been discovered and while his name is as yet unknown to the authorities, voluntarily confesses it either himself or through another person duly deputed by him for the purpose, or of whose crime information is given to the authorities by a person within the degree of relationship that would have justified the latter in concealing it, shall be pardoned. If, however, such voluntary confession or information be either imperfect or inaccurate, the criminal shall be held to be guilty of, and shall be punished for as much of his crime as may have been inaccurately or imperfectly stated; for example, a criminal who, having stolen 100 *yen*, makes a voluntary confession of his crime but represents the amount as

* The term ordinary is used to denote cases where is no official connection or tie of blood relationship between the parties.

having been only 60 *yen*, shall be punished for the amount which he failed to declare—*i. e.* for 40 *yen*. If the imperfection or inaccuracy be so serious as to involve capital punishment, a remission of one degree of severity shall be made in the sentence. Should the confession or information have been consequent only on the offender learning that information of his crime was about to be given to the authorities from another source, or that a warrant had been issued for his apprehension, remissions of two and one degrees respectively in severity only shall be allowed to him and not a full pardon. The latter remission shall not be granted to the offender, if a noble or *samurai*, but if the offence were of a disgraceful nature he shall be spared the degradation that would have otherwise attended it. Restoration of stolen property by a thief to the owner before the fact of the theft has been discovered shall be treated in the same light as voluntary confession. None of these indulgences shall be allowed in the cases of offences against the person, or of injury to property which cannot be replaced or repaired, or in that of unlawful sexual intercourse, or a repetition of the same offence; and in all cases stolen or otherwise dishonestly acquired property must be restored in full, otherwise a voluntary confession will only entail a remission of two degrees in the severity of the sentence instead of a pardon. If, however, a portion of such property be restored, pardon shall be granted for this portion, and punishment mitigated two degrees inflicted (16) for the balance only. Runaways from prison voluntarily surrendering themselves shall have the additional punishment for prison breaking which would otherwise have been inflicted on them remitted, but their original sentences are not to be affected.

Revised Code,
Sec. 59.

Revised Code,
Sec. 67.

Revised Code,
Sec. 64.

Revised Code,
Sec. 61.

OFFENDERS CHARGED WITH TWO OR MORE OFFENCES.

New Code,
"Two Offences
divulged at one
and the same
time."

When two or more crimes on the part of the same person are divulged at one and the same time; proceedings are to be taken against the offender only on account of that which involves the more serious penalty of the two, and, if the penalties for both are alike, one only is to be inflicted. If, again, after a prisoner has been tried and sentenced for any offence, a fresh one committed previous to his trial is discovered, no account is to be taken thereof, unless it be such as would involve a more severe penalty than that to which he has already been condemned. In the latter case such addition shall be made to the first penalty as shall make it equal to that of the more recently discovered offence. In cases where one of the two crimes is such that the offender is entitled to the privilege of commuting the punishment by a money payment, but the other one for which he is liable to undergo the statute punishment, the latter only is to be inflicted, if it be the heavier of the two or if both be alike. If not, a mitigation of five degrees is to be made in the commutable punishment and the balance imposed. For example:—Suppose that it is discovered that a criminal charged with an assault punishable by penal servitude for one year was, before he attained the age of 16 years, guilty of a robbery of 120 *yen*, the punishment of which is penal servitude for ten years but commutable,—the crime having been committed when the offender was of tender years—for a money payment of 30 *yen*. The commutable offence in this instance being the more serious of the two, its penalty is to be mitigated five degrees and the prisoner sentenced to penal servitude for two and a half years, no (17) further account being taken of the charge of

assault. If, however, the robbery had been only of such a nature as would have rendered the offender liable to a penalty of penal servitude for 100 days, then, that for the assault being the heavier, is alone to be imposed and no account is to be taken of the commutable offence.

In cases where two or more robberies or other form of unlawful acquisition are together discovered, the amount acquired by the more serious form of robbery * is to be added to the amount acquired by that which is less so, and the offender punished either for the full amount that has been acquired by both offences according to the law of the lighter form of robbery or for the amount acquired by the more serious form only, if the penalty therefore be heavier than for the full amount under the lighter form. This may be best explained by the following illustrations:— Suppose an offender to be guilty of the theft of public property to the value of 100 *yen*, the statute punishment for which is penal servitude for 7 years, and also of common robbery of a sum of 200 *yen*. The sum obtained by the first and more serious form of robbery is to be added to that acquired by the latter and less serious, and the penalty for a common robbery of the full amount of 300 *yen* being that of penal servitude for life, and heavier therefore than that provided for a theft of public property to the value of 100 *yen*, it is to be inflicted on the prisoner. In the case, however, of an offender guilty of embezzlement of 80 *yen*, the penalty for which is penal servitude for 5 years, and also of common robbery of 10 *yen*, the penalty to which he would be liable for the full amount of

* *i. e.* By the form of robbery which involves the more serious penalty of the two.

90 *yen*, acquired by both robberies if treated according to the less severe form being penal servitude for 3 years, and less therefore than that provided for the embezzlement, punishment is to be inflicted for the latter only.

ABSCONDING OFFENDERS.

New Code,
"Offenders
absconding
together."

(18) If two or more persons who have been concerned in the commission of an offence abscond, and one among them seizes and delivers up to the authorities those whose share in the guilt is greater than his own; or, if when all are equally guilty, a minority seize and deliver up to the authorities the remaining majority, he or they so doing shall receive a full pardon, except the offence have been that of killing or wounding or unlawful sexual intercourse. When several persons are implicated in the guilt of one who dies during the progress of his trial, the punishment of those who are guilty by implication only shall be reduced two degrees of severity, and, in all cases, where a pardon or mitigation is granted to an offender on account of his having made a voluntary confession, or of an Imperial act of clemency, a similar pardon or mitigation shall be granted to every person who has been implicated in his offence.

New Code,
"Absconding
after the Offence
has been
divulged."

When only one party to an offence absconds, and the remainder who are in custody declare the absconding offender to have been the principal, such declaration shall, in the absence of evidence to disprove it, be taken as true, and punishment imposed accordingly; but should it, on the arrest and trial of the absconding culprit, afterwards appear that the first were in reality the principals, then the balance of punishment which they escaped in the first instance shall be added to their previous sentences. When the

relative degrees of guilt of the parties to an offence where one has absconded are clearly and incontestably proved at the trial of those in custody, it shall not be necessary to hold a new trial on the arrest of the absconding culprit, but he may be at once sentenced on the evidence adduced in the first instance.

RELATIVES CONCEALING EACH OTHER'S OFFENCES.

Persons of any degree of relationship living together, or down to the third degree of relationship though living apart from each other, maternal grandparents, daughter's sons, fathers (19) and mothers-in-law, sons-in-law, wives of grandsons, husband's brothers and brother's wives, mutually concealing each other's offences, and also family retainers and servants concealing offences for their masters' sakes shall not be held guilty of any crime for so doing, nor even for informing them of measures that have been taken for their arrest and thus enabling them to conceal themselves or escape. The same immunity shall be extended to persons of a lower degree of relationship, if dependent for their support on the bounty of those whose guilt they cloak, but, if not, they shall undergo the punishment ordinarily inflicted for such offences, mitigated three degrees of severity.

New Code,
" Relations
mutually
concealing
each other."

Revised
Code,
Sec. 82.

The following Table shews the several degrees of Relationship.

| | |
|----------------------------------|--|
| Relations in the first degree : | (Parents, adopted parents, husband, child, adopted child. |
| Relations in the second degree : | (Grandparents, stepmother, uncle and aunt, brothers and sisters, husband's parents, wife, concubine, nephew, grandchild, daughter-in-law. |

| | |
|----------------------------------|---|
| Relations in the third degree : | { Great-grandparents, aunt by marriage, husband's nephew, cousin, half-brother, husband's grandparents, husband's uncles and aunts, concubine's child, nephew's wife, stepfather. |
| Relations in the fourth degree : | { Great-great-grandparents, grand uncle and aunt, second cousin, husband's brothers, brother's wife, cousin's cousin, maternal grandparents, maternal uncle and aunt, wife's child by previous husband, brother's grandchild, cousin's son, sister's child, great-great-grandchild. |
| Relations in the fifth degree : | { Wife's father and mother, aunt's son, mother's cousin, great-great-grandchild, daughter's child, son-in-law. |

REPETITION OF OFFENCES.

New Code,
" Increased
Punishments
for Second
Offences."

A Repetition of the offences of robbery or gambling shall involve an increase of one degree of severity in the sentence in the second instance, but in the event of a third (20) commission of robbery the amounts stolen on the three several occasions are to be added together and the punishment provided by the law applicable to the least serious form of the three robberies imposed for the full amount. The punishment shall be imposed, however, according to the most serious form if it was last of the three instances ; as, for example, if the three robberies in the order of their commission were, firstly, embezzlement of 10 *yen* ; secondly, robbery with violence of 1 *yen* ; thirdly, common robbery of 25 *yen*, the offender shall be punished only for a common robbery of 36 *yen*, the punishment for which is penal servitude for 90 days ; whereas if, in the order of commission, the robbery with violence were the last, he shall be sentenced to penal servitude for life, that being the punishment provided for a robbery with

violence of the above amount. The offence of running away from prison, either before or after the offender has been sentenced for the crime on account of which he was in the first instance placed in custody, shall be punished by the penalties provided therefore in the law contained in the chapter on "Arrest," but a prisoner, who having absconded before sentence had been passed on him, is, while at large, guilty of a second offence, shall be sentenced to the punishment provided for the more serious of the two offences, irrespective of whether it was the first or last committed, increased two degrees of severity, and if the offences were those of robbery, the degree of punishment shall be based on the total value of the goods stolen on both occasions.

OFFENCES DISCOVERED AFTER THE LAPSE OF TIME.

In those instances where an offence is only discovered after a period of several years has elapsed since the date of its commission, the circumstances will be taken into consideration, and either an entire or partial remission of punishment granted. If the discovery is made after the lapse of 10 years, a capital sentence (unless the original crime was that of murder) (21) shall be mitigated to one of penal servitude for 10 years; a sentence of penal servitude for life to one of penal servitude for 3 years; and sentences of penal servitude for 10, 7, or 5 years entirely remitted. Entire remission of punishment shall also be granted for offences liable to any period of penal servitude not exceeding 3 years, if they are only discovered when five years have elapsed since the date of their commission, and also for offences liable to a term not exceeding 100 days, if only discovered after the lapse of three years.

New Code,
"Preliminary Matter."

CLASS III.—DEFINITIONS.

The third class of the General Laws contains the definitions, or explanations, of the meaning that is to be attached to legal terms that appear from time to time in the general body of the laws, and also certain Miscellaneous Provisions.

INCREASE AND MITIGATION OF THE DEGREE OF PUNISHMENT.

New Code,
"Increase and
Mitigation of
Punishments."

Increase or Mitigation of the degree of punishment that is provided in the law applicable to any offence, means that the penalty is to be made more severe or lighter, as the case may be, in the mode that is illustrated in the following example. Where it is stated that a penalty of penal servitude for 80 days is to be increased one degree, it is meant that the penalty which is next in point of severity,—*i.e.* that of penal servitude for 90 days—is to be inflicted. If it is stated that it is to be increased two degrees, then the penalty next but one—*i.e.* penal servitude for 100 days—and, if three degrees, then the penalty next but two—*i.e.* penal servitude for one year—in point of severity is to be inflicted. If, again, it is stated that this penalty is to be mitigated one degree it is meant that immediately below penal servitude for 80 days,—*i.e.* penal servitude for 70 days—is to be inflicted, and if it is stated that it is to be mitigated two degrees, (22) then the penalty next but one below penal servitude for 80 days—*i.e.* penal servitude for 60 days—is to be inflicted. No penalty, however, that is provided in the law applicable to any offence, can be increased such a number of degrees as would render the punishment capital, unless the contrary is specially stated in the law. Thus, though a sentence of penal servitude for 5 years increased four degrees ought to involve

Revised Code,
Sec. 84.

the punishment of death, this is not to be inflicted, but penal servitude for life substituted. Although, again, there are three forms in which the punishment of death may be inflicted, all are to be considered as being one degree of punishment, and when, therefore, it is stated that a capital sentence—no matter in which of the three forms it was to have been carried out—is to be mitigated one degree, penal servitude for life is always to be inflicted. The full extent required by the law to warrant an increase in the degree of punishment must always be clearly proved before such increase is permitted;—*e.g.* embezzlement of 30 *yen* is punishable by penal servitude for one year, whereas if the sum be 40 *yen* the punishment is increased one degree, that is to 1½ years, but if the amount fall short of 40 *yen* by ever so small a fraction, the increase shall not take place.

IMPERIAL PRIVILEGES.

All laws relating to the Imperial privileges shall extend, not only to the Emperor, but also to the Emperor's father, mother, grandmother and consort, and any punishment provided for violation of the Imperial commands shall, reduced one degree in severity, be inflicted for violation of those of the Emperor's relatives herein mentioned.

New Code,
"Imperial
Equipage and
Presence."

PARTICIPATORS.

Those whom the laws declare to be "Participants in a crime" are to suffer the legal punishment provided for such crime, but mitigated one degree in the case of capital offences. Where the laws state that a crime is (23) "the same as" (another) the full legal punishment provided for the latter shall be inflicted. Where the laws state that an offence is to be

New Code,
"Participants."
Revised Code,
Sec. 88-89.

considered as "coming under the category of laws applicable" to (e. g.) bribery the legal punishment shall be inflicted, but it is not to exceed penal servitude for 10 years; where, however, a case is referred directly to those laws the full extent of the punishment must always be carried out.

SUPERINTENDENTS AND CUSTODIANS.

New Code,
"Superin-
tendents
and Custo-
dians.

Responsible Superintendents are those who have particular departments of the Government under their control; responsible Custodians are those in charge of treasures, storehouses and the like.

FAMILY SERVANTS.

Revised Code,
Sec. 9. "Family Servants" include all the employees of every degree in the households of noble, *samurai* and commoner alike.

RESTITUTION AND FORFEITURE OF GOODS.

New Code,
"Restitu-
tion and
Forfeiture
of stolen
goods."

In all cases of transfer of property where guilt attaches both to the giver and receiver, in those of bribery, whether for a lawful or an unlawful object, and in those where a person is found in the possession of prohibited goods (e.g. opium), such property, bribes or goods, shall be forfeited to the Government, but goods which have been obtained by one person from another by such unjust means as violence, threats, fraud, extortion or the like, shall be restored to the rightful owner who has been so deprived of them. The proceeds of a robbery—no matter of what nature—that may be found in the possession of the thief, or in that of a person to whom he has transferred them, or who has acquired them otherwise than by purchase in open market at a fair price, irrespective of the number of hands through which they may have passed since the com-

Revised Code,
Sec. 51.

Revised Code,
Sec. 53.

(24) mission of the crime, or to whom they have been given by the thief as gifts or in satisfaction of previous debts, shall in all cases be restored to the rightful owner. Any property, also, that a thief may be possessed of, shall, if he have already made away with the proceeds of the robbery, be devoted to reimbursing the person on whom the robbery was committed. The value of stolen property is for purposes of punishment always to be estimated at its medium market value at the time and place of the robbery.

Revised Code,
Sec. 56-58.

Revised Code,
Sec. 55.

CONTRADICTORY LAWS.

Crimes to which there is a law in the general body of the codes specially applicable shall always be decided according to such law, even though it may appear to differ from any of the General Laws in this division. When a crime to which there is a law specially applicable is in itself an evidence of a design to commit another and more serious crime, punishment shall be imposed according to the law bearing on the latter and not the former. If an offence is committed under aggravating circumstances of which the offender was himself ignorant at the time of commission, then only the punishment due in ordinary cases is to be inflicted, while, on the other hand, the advantage of any remission of punishment provided by the special law applicable to the offence when committed under extenuating circumstances, shall always be allowed to an offender, even though he may at the time have been ignorant of such circumstances. Examples of these two cases last mentioned are: A nephew striking an uncle from whom he has been brought up apart, and of whose personality he was ignorant, shall be punished only for an assault in ordinary cases, instead of for an assault on Family Seniors;

New Code,
"Crimes
differently
described in
the Particular
Laws."

while a father striking his son, though under the impression at the time that the son was a stranger, shall not render himself liable to any penalty.

DETERMINATION OF CASES TO WHICH THERE IS NO
LAW APPLICABLE.

New Code,
"Cases to
which there
is no law
applicable."

Notification
No. 184 of
December
18th, 1874.

(25) In case of the commission of any offence to which there can be found no law applicable, the degree of punishment that is to be inflicted for it is to be determined by an accurate comparison of the case with others already provided for in the laws. Such punishment must, however, be reported to and approved of by the Emperor before being carried out. Whenever the special circumstances attendant on the commission of any crime to which there is a law applicable seem to be of such a nature as to render the offender deserving of special clemency, mitigations may be made in the degree of punishment provided in the law, but they must not exceed five in number.

CHAPTER II.

DOMESTIC LAW.

(26) The literal meaning of the term in the original which I have translated 'Domestic' is 'House and Marriage,' and the laws contained in this chapter consist for the most part of a very short selection from the three first books of the Fiscal and from the second book of the Ritual Laws in the Tsing code, respectively, entitled 'Enrolment of the People,' 'Lands and Tenements,' 'Marriage,' and 'Miscellaneous Observances.' They are comprised in eleven sections of the New Code, and, thirteen chapters of the Revised Code, and in summarizing them I shall classify them according to the above headings.

LANDS AND TENEMENTS.

The offences treated of in the laws thus headed are of three kinds: (a) Unfair levy or assessment, or wilful evasion of payment of the land tax: (b) Fraudulent mortgage or disposal of lands: (c) Injuries to crops, etc.; and the following are the punishments respectively provided for them.

Unfair levy or assessment of the land tax on the part of officials of any grade, penal servitude for 50 days or, if the offence has been committed for a bribe, such heavier punishment as the amount of the bribe, if treated as goods acquired by common robbery would involve.

Misrepresentation of the value of land with a view to evade payment of the land tax and defraud the Government, penal servitude for 30 days, for any extent up to five *se** so mis-

New Code,
"Partial Assessment of
Land Tax."

New Code,
"Fraudulent concealment
of produce
of land."

* One *se* of land is 1,080 square feet.

represented, one degree of severity being added to this punishment for every additional five *se*, until the maximum penalty, that of (27) penal servitude for 100 days is reached. The land so misrepresented is to be confiscated, and any arrears, of which payment had been evaded prior to the discovery of the offence, are to be collected from the offender.

Revised Code, Sec. 109. Tampering with the official Land Register, penal servitude for $1\frac{1}{2}$ years, with a similar reservation to that in the first instance in case the offence is committed for a bribe.

New Code, "Theft and Sale of Lands and Tenements." Fraudulent disposal in any way or acquisition of the lands or tenements of another, mortgaging a second time land or tenements that have been already pledged to the full extent of their value,

New Code, "Second Mortgage or Sale of Lands and Tenements." re-selling any that have already been disposed of, or wilful destruction of agricultural implements, growing trees, plants or vegetables, shall be treated as common robbery and punished accordingly in proportion to the amount that has

New Code, "Destruction of implements, plants, or fruit." been acquired by such fraudulent mortgage, or re-sale, or to the value of the articles destroyed, the punishment being, however, limited in the case of the offence first mentioned to penal servitude for 10 years, and in all cases to be increased one degree in severity if the offence be committed against the Government.

New Code, "Second Mortgage or sale of Lands and Tenements." Refusal to return land mortgaged on the mortgagors tendering payment of the bond in full at the proper date, penal servitude for 30 days. In both this and the previous cases the offender is, in addition to undergoing the legal punishment, to forfeit to the rightful owner any gain which he may have unlawfully acquired by his fraud or detention of the land.

New Code, "Destruction of implements." Inadvertent destruction or loss of Government property shall be treated as common robbery,

but the punishment contained in the law relating ^{plants and fruit."} thereto shall be reduced three degrees in severity. No penalty shall attach to the inadvertent destruction of private property, unless that of standing crops caused by animals, carelessly let loose, in which case the persons responsible for the ^{Revised Code, Sec. 110.} custody of said animals shall be punished for Pecuniary Malversation to the extent of the value of the (28) property that has been so destroyed. In all these cases full restitution of the value of the property destroyed must be made to the owner, whether the Government or a private individual.

Unauthorised removal of flood gates or dams, ^{Revised Code, Sec. 111.} or breaking of river embankments shall be punished according to circumstances either as a grave or trivial Impropriety, under the law relating to Improprieties that is contained in the chapter on Miscellaneous Offences.

ENROLMENT OF THE PEOPLE.

The laws comprised under this head also relate to three classes of offences, namely, those connected with Inheritance and Succession, Wanton Disposal of Family Property, and Absconding. The offences described in them with their penalties are as follows:—

Discarding without due reason the son of a ^{New Code, "Violation of Law of Inheritance."} wife in favour of that of a concubine, penal servitude for 90 days, the rightful heir to be reinstated.

Discarding an adopted son, unless in favour of a natural child born after the adoption had taken place, penal servitude for 2 years.

Abandoning a natural or adopted child, penal ^{Revised Code, Sec. 112.} servitude for 100 days, a step-child, penal servitude for year, and a child, adopted for the sake of the money thereby obtained, penal ^{Revised Code, Sec. 113.} servitude for 10 years.

Revised
Code, Sec. 114.

Procuring or assisting in any way to procure abortion, penal servitude for 100 days. In none of these offences shall the offender, if a female, be allowed to commute the punishment of penal servitude by the payment of a fine.

New Code,
"Unauthorised
consumption of
property by son
or younger
brother."

Wanton disposal or consumption of the property of a parent by a son, of that of an elder by a younger brother, or of that of any member of a family by a junior member thereof or by a servant, or of that of the superintendent of any religious community—male or female—by the members thereof, penal servitude for 10 days for each *yen's* worth of property so (29) disposed of, the maximum punishment being, however, limited to penal servitude for 100 days.

Revised
Code, Sec. 115.

Revised
Code, Sec. 115.

New Code
"Absconding."

Revised
Code, Sec. 117.

New Code,
"Absconding of
domestics."

Absconding from the place of registration, penal servitude for 80 days, but this punishment may be commuted if the offender return and give himself up to the authorities within two years. On every repetition of the offence after the second, an increase of one degree of severity is to be made, until the maximum penalty of penal servitude for 1 year is reached. Increases in the degree of severity shall also be made if the offender be a *samurai* (when he shall be degraded) or if he absconds to foreign countries. Domestic servants of any description absconding from their master's employment shall be punished by penal servitude for 30 days.

MARRIAGE AND MISCELLANEOUS OBSERVANCES.

New Code,
"Ejection of a
son-in-law and
marriage of
daughter."

The offences punishable by the laws comprised under the remaining two headings of this section are—in respect to marriage—ejection of a son-in-law without due reason and giving daughter in marriage to a second husband, penal servitude for 90 days, the second husband being considered

a participator in the crime if aware of the unjust
ejection of the first; engaging in marriage during
the period of mourning for parents or grand-
parents, penal servitude for 100 days; and—in
the case of miscellaneous ritual observances—
concealment of the death of parents or husband
and not going into mourning, penal servitude
for 1 year, and falsely reporting the death of
parents or grandparents, penal servitude for 100
days.

New Code,
"Concealment
of death of pa-
rents or hus-
band."

CHAPTER III.

ROBBERY AND THEFT.

(30) All cases of robbery—with the exceptions of "Sacrilege," "Theft of Imperial Property," and "Theft of Public Documents," each of which offences is provided for by a special statute—are included in one or other of four classes, namely "Violent Robbery," "Embezzlement of Public Property," "Theft of Public Property," and "Common Robbery," and all these offences, as well as those of "Rescue of Prisoners," "Abduction and Sale of Women," "Trespassing," "Conspiracy and Riot," and "Harbouring of Thieves and Receiving Stolen Property" are described in the present chapter.

VIOLENT ROBBERY.

New Code,
"Violent
Robbery."
Revised
Code. Sec.
127-133.

Preliminary
matter.
"Table of
seven kinds
of Unlawful
Gain."

Violent robbery includes burglary effected by smashing of doors, fences or walls, highway robbery, robbery effected by stupefying a person with drugs, and, in general, all cases where force of any kind is used by the thief at the time of the actual commission of the robbery, either for the purpose of effecting his object or preventing his arrest. Two degrees of it are recognized—namely, violent robbery with weapons, and violent robbery without weapons. Thieves who at the time of the commission of the offence are armed with swords, spears, pistols or guns are always to be, and, if armed with sickles, knives, hatchets, sheath knives, or clubs, may be considered guilty of the first, and are to be punished, if the robbery has been accomplished, irrespec-

tive of the amount stolen and without distinction of principal and accessory, by decapitation; if the robbery has been only attempted, the principal by hanging and the accessories by penal (31) servitude for life, unless the offenders have, in addition to the robbery, been guilty of either murder or wounding when, as before, all shall be punished by decapitation. Violent robbery without weapons includes all the above cases when, at the commission, the thief or thieves were not armed with any of the weapons mentioned. The punishments which are to be inflicted for it vary according to the amount stolen, as shown in the table below, and in passing sentence the following provisions are to be observed. All parties to the offence without distinction between principal and accessories, are to be punished for the full amount stolen irrespective of whether any division of it has been made among them or not. Thus, if three unarmed persons together commit a highway robbery of ten *yen*, although the principal may appropriate three-fifths of this sum, the first accessory the remaining two-fifths and the second get nothing, the whole three are nevertheless to be punished alike as having stolen ten *yen* and sentenced therefore as will be seen by the table, to penal servitude for five years. If murder is committed in connection with the robbery it shall involve the punishment of decapitation, and wounding or rape (even if only attempted) that of hanging, but those of the offenders who had no share in such murder, wounding or rape are only to be punished for the crime of robbery. Reductions of the degrees of punishment provided in the table shall be made of one degree in the case of an accessory who, though he enters a house, does not assist in the search for booty, or who only remains on watch outside and assists in passing

Revised
Code, Sec. 127.

New Code,
"Violent
Robbery by
unarmed
persons.

Revised Code,
Sec. 127.

Revised Code,
Sec. 128.

Revised
Code, Sec. 129.

out the booty;—of two degrees in the case of persons who, having been forced by threats to join in the commission, have entered a house, searched for, and shared in the division of the booty,—and of three degrees if they have not shared in such division, or if they have only remained on watch outside the house and assisted in handing out the booty. These mitigations shall not be made in the case of (32) second offences. Persons who are clearly proved to have purposed committing a violent robbery but have been prevented doing so by being arrested, shall, if they were armed at the time of arrest, be punished by penal servitude for five years, and if unarmed by penal servitude for one year.

Revised
Code, Sec. 130.

EMBEZZLEMENT OF PUBLIC PROPERTY.

New Code,
"Embezzlement."

Embezzlement of public property is the offence of which superintendents of public property, or custodians of Government storehouses of any kind, who appropriate or obtain fraudulent possession in any way of the property committed to their charge, are to be convicted. The punishments for it are as given in the table, and, in inflicting them, no distinction is to be made between principal and accessory, and all parties to the offence are to be punished for the full amount stolen in the same way as in the case of violent robbery. A repetition of the offence, even if only attempted, shall involve an increase of one degree in the punishment, and an offender guilty of a second repetition shall be punished by penal servitude for life.

Notification
No. 267 of July
24, 1873.

THEFT OF PUBLIC PROPERTY.

New Code,
"Theft by Ordinary Persons."

Theft of Public Property is the stealing of it by any persons other than those in whose custody it was. A distinction between principal and

a ccessory is only to be made when the theft has been attempted but not successfully accomplished, and, in other cases, all the parties are, as before, to be punished for the full amount stolen.

An increase of one degree of severity is always to be made in the punishments provided in the table in the case of a repetition of the offence, and a second répétition is always to be punished by penal servitude for life, irrespective of what the amount stolen may have been.

Notification
No. 167, of July
14th, 1873.

COMMON ROBBERY.

(33) Common Robbery includes all cases of offences against private property that are unaccompanied with violence,—such as pocket-picking, secret theft, embezzlement of master's property by a servant, obtaining fraudulent possession, extortion by threats, etc., etc. All parties to its commission shall be punished for the total amount stolen by them, but the distinction between principal and accessory is to be observed. If the robbery be only attempted the punishment is to be penal servitude for 49 days, but, if it be a second offence, for 50 days, and, if a third, for 3 years, and if it be committed or attempted a fourth time the punishment is always to be penal servitude for life, irrespective of the amount stolen. Accidental wounding in connection with the robbery shall be punished more or less severely, in proportion to the gravity of the wounds, by the penalties contained in the law of "Quarrelling and Fighting" increased one degree, but this punishment is not to exceed penal servitude for 10 years. Accidental killing shall be punished by hanging. The term "obtaining fraudulent possession" is used to describe all

New Code,
"Secret
Theft."

New Code,
"Extortion
of Property by
threats."

Revised
Code, See 136.

Notification
No. 266 of July
23. 1873.

New Code,
"Fraud."

cases in which property is obtained by asserting a false claim to it, by deceiving the owner by a plausible story, by prevailing on him to part with it on any pretence, or by absconding with it. The punishment to be inflicted for it is limited to penal servitude for 10 years.

All the punishments of the above offences, with the exception of that for violent robbery with weapons, are shown in the following table, as are also those to be inflicted for offence treated of in the chapter 'Bribery and Corruption.'

TABLE.

(34)

| SCALE OF PUNISHMENTS TO BE INFLICTED FOR OFFENCES AGAINST PUBLIC OR PRIVATE PROPERTY. | | | | | | |
|---|----------------------------------|----------------------------------|--|---|---|--|
| Penal servitude for | Violent Robbery without weapons. | Embezzlement of Public Property. | Theft of Public Property and Bribery for all unlawful objects. | Common Robbery and Bribery for a lawful object. | Pecuniary Malversation. | |
| Ten days... .. | — | — | — | — | If the value of the property obtained is under five yen. If over 5 yen | |
| Twenty days | — | — | — | — | " 20 " | |
| Thirty days | — | — | — | — | " 40 " | |
| Forty days | — | — | — | — | " 60 " | |
| Fifty days | — | — | — | — | " 80 " | |
| Sixty days | — | — | — | — | " 100 " | |
| Seventy days | — | — | — | — | " 120 " | |
| Eighty days | — | — | — | — | " 140 " | |
| Ninety days | — | — | — | — | " 160 " | |
| One hundred days... | — | — | — | — | " 200 " | |
| One year... .. | — | — | — | — | " 400 " | |
| One year and a half | — | — | — | — | " 600 " | |
| Two years | — | — | — | — | " 800 " | |
| Two and a half years | — | — | — | — | " 1000 " | |
| Three years | — | — | — | — | " — " | |
| Five years... .. | — | — | — | — | " — " | |
| Seven years | — | — | — | — | " — " | |
| Ten years | — | — | — | — | " — " | |
| Life | — | — | — | — | " — " | |

(35) In inflicting the above punishments the following increases or mitigations are to be made.

In the case of common robbery, an increase of one

New Code,
"Theft of Master's property,"

degree in the punishment of a servant guilty of robbing his master's property and of two degrees in that of a servant guilty of embezzlement of

Notification
No. 74 of May
19, 1874.

his master's property; in the case of persons only temporarily employed, such as chair coolies, boatmen, etc., who may steal any property entrusted to them by their employers or in that of a hotel keeper who steals property committed to his

New Code,
"Theft from
Relatives.

care by a guest. In the case of theft from a relative of the fifth degree of relationship a mitigation of one degree in the punishment provided for ordinary cases shall be allowed, and a further mitigation of one degree for each closer degree of consanguinity that there may be between the parties, but in the case of violent robbery this mitigation shall only be allowed when the offender is the senior relative of the two; *e. g.* it shall allowed to an uncle robbing his nephew but not to a nephew robbing his uncle. In the latter case, however, if the crime is accompanied with the killing or wounding—though accidental—of the relative robbed, the offender shall be punished under whichever of the laws of Robbery or Homicide subjects him to the severest penalty. This law of course applies only to relatives dwelling apart from each other. Robbery from relatives resident under the same roof shall be treated as "Unauthorized disposal of the family property" the punishment as provided in the law contained in the chapter on Domestic Law to be increased two degrees, but not so as to exceed the maximum penalty of penal servitude for 100 days. A mitigation of one degree shall be permitted in the punishment for Common Robbery of a stranger who steals

family property either at the instigation of, or in conjunction with a member thereof, but if the latter is guilty of causing at the time of the robbery either death or wounds, the stranger even though he took no part in and was ignorant of such killing or wounding, shall be punished for violent robbery.

(36) "Stealing cattle or animals of any kind from pasture or stable shall be punished either as Embezzlement or Theft of Public Property or Common Robbery as the case may be, but if from pasture the punishment must not exceed penal servitude for 10 years. This limitation is also to be observed in case of theft of growing crops, timbers, or anything prepared for use and left in an unwatched place, which are all to be punished under the law of common robbery. If animals that have been stolen are afterwards killed, the punishment is to be increased one degree, and no matter what the value of the animals may have been it is not to be less than penal servitude for one year in the case of Government, or for 100 days in the case of private property. Wilful killing of animals, even if they are not stolen, is to be punished according to the laws of robbery, the punishment, no matter what may have been the value of the animals destroyed, not to be less than penal servitude for 100 days in the case of Government or for 90 days in the case of private property."

New Code,
"Theft of
Government
or private
cattle."
Revised
Code, Sec. 140

New Code,
"Theft of
growing crops."

Revised
Code, Sec.
141.

SACRILEGE—IMPERIAL PROPERTY—PUBLIC DOCUMENTS.

The punishments provided for the three classes of robbery specially treated of are as follows: For Sacrilege, which consists of the theft of the offerings to the gods, of articles that have

Revised Code,
Sec. 122.

| | |
|--|---|
| | been got ready with a view to and are about to be offered to the gods, the relics of shrines, etc.—penal servitude for life if committed at the shrines of Isé or at the chapel within the precincts of the place, and if at other shrines for a period varying from 10 years to 90 days according to the class of the shrine. For theft of Imperial clothing in use—penal servitude for life; if already used and laid aside or only prepared for use—penal servitude for 2 years; for theft of food, prepared for the Emperor or of Imperial furniture,—penal servitude for 1½ years, and theft of plants and tree from Imperial grave-yards,—penal servitude for 100 days, or such heavier punishment as would be entailed if the offence were treated under the ordinary law of robbery and the penalty increased one degree. For theft of Public Documents, if belonging to the Privy Council, penal servitude for 100 days; if to one of the chief metropolitan or provincial departments for 80 days, and in the case of any other public document, for 30 days, the punishment in each case to be increased one degree if the documents were of primary importance, and in all instances the theft to be punished by the most severe law applicable to it if committed with an ulterior corrupt motive. For Theft of the Seal of the Privy Council, penal servitude for 10 years; of that of one of the chief metropolitan or provincial departments, for 3 years, of any other Government seal, for 80 days and of a private seal, for 70 days, with the same reservation, as in the previous instance, if the theft is committed with an ulterior corrupt motive. |
| Revised Code, Sec. 123. | |
| Revised Code, Sec. 121. | |
| New Code, "Theft of Imperial Clothing." | |
| New Code, "Theft of trees from Imperial Cemetery." | |
| New Code, "Theft of public Documents." | |
| New Code, "Theft of Official Seals." | |
| Revised Code, Sec. 125. | |

There remain to be noticed certain offences which, though treated of in this chapter, are not necessarily connected with robbery.

RESCUE OF PRISONERS.

Forcible rescue of a prisoner from custody, whether only attempted or successfully carried out, shall be punished by penal servitude for 10 years, or for life if the prisoner were under sentence of death, or if wounds are inflicted on any one while the rescue is being effected.

Revised Code,
Sec. 134.

ABDUCTION AND SALE OF WOMEN.

Forcible abduction or enticement of women away from their guardians shall be punished by penal servitude for 7 years if the women be sold to a prostitution or any degrading or toilsome occupation, and for 2½ years if she be sold as a wife, concubine, or servant; the woman in each case to be restored to her guardians unless she be over 10 years of age and have assented to her abduction or disposal, (38) when she shall undergo punishment three degrees less severe than that of the chief offender, whose punishment shall also be reduced one degree. A husband who sells his wife to prostitution against her will shall also be punished as above, but if with her consent by penal servitude for 70 days; any person who sells his daughter to prostitution against her will shall be punished by penal servitude for 50 days, and any one who in like way sells his niece, younger sister or granddaughter by penal servitude for 70 days. Abduction of a wife or concubine, and making her one's own or another's wife or concubine, shall be punished by penal servitude for five and three years respectively. Disposal of any woman against her will to a foreigner, even if only attempted, shall be punished by penal servitude for ten years;—and in both this and the previous case, the stipulations provided in

New Code,
"Abduction
and Sale of
Women."
Revised Code,
Sec. 145.

Revised Code,
Sec. 146.

Revised Code,
Sec. 147.

Revised Code,
Sec. 149.

Revised Code,
Sec. 150.

the first instance as to the mitigation of the punishment of the chief offender and the punishment to be inflicted on the woman whenever she is a consenting party to her abduction or disposal, are to be observed. Disposal of a daughter to a foreigner against her will shall be punished by penal servitude for 1 year, and for 100 days, if with her consent, mitigated in either case one degree if the disposal be not actually completed. Any Japanese purchasing a foreigner shall be liable to a penalty less severe by one degree than those herein provided for the offence of disposing of a Japanese to a foreigner.

TRESPASSING IN A DWELLING-HOUSE AT NIGHT.

New Code,
"Unauthorized
entry into a
Dwelling-
house at night."

Revised
Code,
Sec. 155.

Any person, who without due reason, enters a dwelling-house during the night time, shall be punished by penal servitude for 30 days, and no blame shall attach to any householder who kills such person on the spot. Should, however, a householder deliberately kill or wound such person after he has been duly arrested, he shall be liable to the punishment provided in the law of Quarrelling and Fighting for the offence of killing or wounding in an (39) affray, mitigated two degrees. The owner or custodian of any cereals, vegetables, or fruit, who pursues a person attempting to steal the same during the night time, or, of any house or other property in town or country, who pursues a thief entering therein in broad daylight, and slays him on overtaking him shall, without reference to whether the theft has been successfully accomplished or not, be punished by penal servitude for 2 years; and killing, wounding, or beating such person after he has been duly arrested shall in each case be visited by the same

punishment that would have attached to the offence if it had been committed during an affray, mitigated, however, one degree.

UNLAWFUL CONSPIRACY AND RIOT.*

The ringleaders of any band of rioters who wreck, burn, or plunder property or cause wounds or death shall be punished by decapitation; an accessory, who, with his own hand, commits murder or kindles a fire, by hanging; and other accessories by penal servitude for 10 years. The word 'accessory' is in this case to be understood to mean an offender who, though he has not been the actual contriver, or originator of the riot, has yet taken part in the deliberations among the offenders which preceded its actual outbreak. Persons who have not done so, but have been present at the time of the riot and contributed to swell the numbers of the rioters, shall be punished according to the law "Violation of Standing Orders," contained in the chapter entitled "Miscellaneous Offences," but they shall be permitted to commute the term of penal servitude therein provided by the payment of a fine calculated at the usual rate. If, however, persons (40) who would otherwise come under this category, with their own hands kindle a fire, they shall be punished by penal servitude for 10 years, and by penal servitude for 3 years if they do so under compulsion; and if they assist

New Code,
"Riotous
Assemblies."

Revised
Code,
Sec. 151.

* There is no law of "High Treason" in Japan, and though the present one might be applied to cases where the treason extended to rebellion, it is impossible to say whether or not it is under it that punishment is imposed for that offence, as none of the sentences that have been passed on persons guilty of it have been published. The absence of a law of "High Treason" is the more remarkable from the fact that in the Chinese Codes on which the "New Code" is founded, the crime is treated with the greatest minuteness, several degrees of it being described.

under compulsion in the wrecking of property they shall be punished for a "Grave Impropriety," the law relating to which is also contained in the chapter "Miscellaneous Offences."

The ringleaders, again, of any number of persons who, on account of agricultural distress in their own district, assemble and assault farmers, threaten the authorities, plunder the local stores, make an uproar at the Government office; or on account of any resentment, forsake their occupations and so bring discredit on the authorities, shall be punished by hanging; the accessories by penal servitude for 10 years. If, however, persons who have thus assembled inflict no injury on the people but merely forcibly urge a petition on the Government, the ringleader shall be punished by penal servitude for 10 years, and the accessories by a penalty mitigated one or two degrees in proportion as their share of the guilt may have been greater or less. When a riot is clearly ascribable to bad government on the part of the local authorities, or when the rioters are discovered by other authorities than those under whose jurisdiction they are before they have proceeded to extremes, they shall be punished by penal servitude for 100 days, or for 70 days if the riot were not of a serious nature.

Revised
Code,
Sec. 153.
Revised
Code,
Sec. 154.

HARBOURING OF THIEVES.

New Code,
"Harbouring
of Thieves."

Any lodging-house keeper who harbours persons guilty of robbery with violence, and who likewise contrives a robbery of this nature and shares in the booty thereby obtained shall, even though he had not assisted in its carrying out, be punished equally severely with those who have, and in the case of common robbery he shall under similar circumstances be treated as the principal in the

(41) offence. If he does not share in the booty he shall be punished in the case of robbery with violence by penal servitude for two years, and in that of common robbery as an accessory. He shall also be punished equally severely with those who have actually committed robbery with violence when, though he may not have been its contriver, he has yet taken part in the deliberations that preceded it, and has either shared in the booty even without assisting in the commission or assisted in the commission without sharing in the booty, and he shall in all these instances be treated as an accessory in the case of common robbery. Mere harbouring of persons guilty of violent robbery shall be punished by penal servitude for 80 days, and of persons guilty of common robbery by penal servitude for 20 days.

Receivers of stolen goods, or of money or property acquired by the disposal of persons forcibly abducted or disposed of with their own consent, shall be punished as accessories in a common robbery; purchasers of stolen goods or receivers of any property acquired by extortion, fraud, or bribery, whether for a lawful or an unlawful object, shall be punished under the law of Pecuniary Malversation. A mitigation of one degree in the punishment provided in this law shall be allowed to those who purchase, and two degrees to those who merely receive into their keeping, property unlawfully acquired by any of these means last mentioned, but in all cases the punishment shall be increased one degree of severity on every repetition of offence until the maximum of penal servitude for three years is reached.

Revised Code,
Sec. 158.

Pawnbrokers who receive in pledge any stolen goods unsecured by broker and guarantor shall, even though they were ignorant of the

Revised Code,
Sec. 157.

Revised Code,
Sec. 156.

fact that such goods were stolen, forfeit them to their rightful owner; and any person who acts either as broker or guarantor in pledging stolen goods, shall be sentenced to a punishment one degree less than that provided for Pecuniary Malversation; and if he (42) has received any money for doing so to one degree less than that for common robbery; and he shall in addition in both cases be held liable to reimburse the amount for which the goods have been pledged.

(43) CHAPTER IV.

HOMICIDE.

Of the crime of Homicide there are three degrees, viz; preconcerted and wilful murder, wilful but not preconcerted murder, and manslaughter.

PRECONCERTED AND WILFUL MURDER.

Preconcerted and Wilful Murder is Homicide which it is clear from such attendant circumstances as the perpetrators having a scheme of revenge to effect, having previously prepared and provided themselves with noxious drugs, weapons or implements of any kind wherewith to carry out their design, or from a number of persons having united and made a simultaneous assault, that the crime has been deliberately planned and concerted beforehand. The punishments that are to be inflicted for its successful accomplishment or attempt are detailed with great minuteness in four sections of the New and six sections of the Revised Code, but in order to avoid repetition as much as possible I have endeavored to show them all in the table that is here subjoined, instead of separately describing each particular case as in the original.

New Code,
"Deliberate
Murder."
"Murder of
Officials."
"Murder of
Grandparents
of Parents."
"Murder of
Head of the
Family."

Revised
Code, Secs.
160, 162,
165, 166,
167, 168.

(44) TABLE OF THE PENALTIES THAT ARE TO BE INFLICTED ON THOSE GUILTY OF ATTEMPTING TO COMMIT, OR COMMITTING, WILFUL AND DELIBERATE MURDER.

| | | Principal. | Accessory who has assisted in carrying out the Design. | Accessory who has not so assisted. |
|--|---|-------------------------------|--|------------------------------------|
| In ordinary cases, i. e. in those where there is no relationship whatsoever between the parties to the offence | If the Murder be actually accomplished. | Decapitation. | Hanging. | Penal servitude for 10 years. |
| | If the Murder be attempted, but only wounds inflicted | Hanging. | Penal servitude for 10 years. | " " 3 years. |
| | If the Murder be attempted but no wounds inflicted. | Penal servitude for 3 years. | " " 100 days. | " " 100 days. |
| | If intent only be proved | " " 100 days. | " " 90 days. | — |
| | If the victim dies while attempting to escape | " " 10 years. | " " 3 years. | — |
| | If the victim dies on the spot from fright | Hanging. | " " 10 years. | — |
| | | | | |
| | | | | |
| In cases of the Murder or attempted Murder of an Official of Imperial appointment.* | If the Murder be actually accomplished. | Decapitation. | Decapitation. | Decapitation. |
| | If the Murder be attempted, but only wounds inflicted. | Decapitation. | Penal servitude for life. | Penal servitude for 10 years. |
| | If the Murder be attempted, but no wounds inflicted. | Penal servitude for 10 years. | " " 7 years. | " " 7 years. |

(45) TABLE OF THE PENALTIES THAT ARE TO BE INFLICTED ON THOSE GUILTY OF ATTEMPTING TO COMMIT, OR COMMITTING, WILFUL AND DELIBERATE MURDER.—(Continued.)

| | | Principal. | Accessory who has assisted in carrying out the Design. | Accessory who has not so assisted. |
|--|---|-----------------------------|--|------------------------------------|
| In cases of the Murder or attempted Murder of an Official of Government appointment. | If the Murder be actually accomplished. | Decapitation. | Decapitation. | Decapitation. |
| | If the Murder be attempted, but only wounds inflicted. | Hanging. | Penal servitude for life. | Penal servitude for 10 years. |
| | If the Murder be attempted, but no wounds inflicted. | Penal servitude of 7 years. | " " 5 years. | " " 5 years. |
| In cases of the Murder or attempted Murder of an Official of Departmental appointment. | If the Murder be actually accomplished. | Decapitation. | Decapitation. | Decapitation. |
| | If the Murder be attempted, but only wounds inflicted. | Hanging. | Penal servitude for life. | Penal servitude for 10 years. |
| | If the Murder be attempted, but no wounds inflicted. | Penal servitude of 5 years. | " " 3 years. | " " 3 years. |
| In cases of the Murder or attempted Murder of an Official of Imperial by one of Departmental appointment. | If the Murder be actually accomplished. | Decapitation. | Decapitation. | Decapitation. |
| | If the Murder be attempted, but only wounds inflicted. | Hanging. | Penal servitude for life. | Penal servitude for 5 years. |
| | If the Murder be attempted, but no wounds inflicted. | Penal servitude of 7 years. | " " 5 years. | " " 5 years. |

(46) TABLE OF THE PENALTIES THAT ARE TO BE INFLICTED ON THOSE GUILTY OF ATTEMPTING TO COMMIT, OR COMMITTING, WILFUL AND DELIBERATE MURDER.—(Continued.)

| | | Principal. | Accessory who has assisted in carrying out the Design. | Accessory who has not so assisted. |
|--|---|--|--|--|
| In cases of the Murder, or attempted Murder, of an Official of Government by one of Departmental, or one of Imperial by one of Government appointment | If the Murder be actually accomplished. | Decapitation. | Decapitation. | Decapitation. |
| | If the Murder be attempted, but only wounds inflicted. | Hanging. | Penal servitude for life. | Penal servitude for 5 years. |
| | If the Murder be attempted, but no wounds inflicted. | Penal servitude for 5 years. | " " 3 years. | " " 3 years. |
| In cases of the Murder, or attempted Murder, of an Official of a lower, by one of a higher grade. | | The same punishments as those provided for ordinary cases. | | |
| In cases of the Murder, or attempted Murder, of a Grandparent, Parent, Paternal Uncle or Aunt, elder Brother or Sister, Husband, Husband's Parent or Grandparent. | If the Murder be actually accomplished. | Decapitation with exposure of Head, Hanging. | Decapitation with exposure of Head, Hanging. | Decapitation with exposure of Head, Hanging. |
| | If the Murder be attempted..... | | | |

(47) TABLE OF THE PENALTIES THAT ARE TO BE INFLICTED ON THOSE GUILTY OF ATTEMPTING TO COMMIT, OR COMMITTING, WILFUL AND DELIBERATE MURDER.—(Continued.)

| | | Principal. | Accessory who has assisted in carrying out the Design. | Accessory who has not so assisted. |
|---|---|--|--|------------------------------------|
| In cases of the Murder, or attempted Murder, of a Senior by a Junior relative below the 3rd degree of relationship, or of a master by his servant. | { If the Murder be actually accomplished, } | Decapitation. | Decapitation. | Decapitation. |
| | { If the Murder be attempted, but only wounds inflicted. } | The same punishments as in ordinary cases. | | |
| | { If the Murder be attempted, but no wounds inflicted. } | Penal servitude for 5 years. | Penal servitude for 3 years. | Penal servitude for 3 years. |
| In cases of the Murder or attempted Murder of a Junior by a Senior relative. | { If the Murder be actually accomplished. } | According to the Law of Wilful Murder. | | |
| | { If the Murder be attempted. } | According to the Law of Assault, a mitigation of one degree being allowed. | | |

ment shall in all these cases be reduced one degree, if any of the accused, whatsoever, commit suicide or die while in custody after the commission of the offence.

In any of the following cases, whenever death is caused, the guilty party or parties shall be punished under this law for the crime of "Murder in an Affray;" and, when wounds or injuries only are caused, by whichever of the several penalties provided in the law of assault in the following chapter the degree of severity of the wound or injury may call for.

New Code,
"Killing and
Wounding
in Sport." Killing or wounding a person while engaged in any sport attendant with risk to human life, such as fencing, boxing, etc, the punishment to be reduced two degrees, but only one if (50) the sport were of a very dangerous nature, or if carried on in a dangerous place.

New Code,
"Killing a
By-stander
by mistake." Killing or wounding a by-stander while engaged in an affray or wounding a person other than the intended victim in an attempt to commit wilful murder,—the maximum punishment not to exceed penal servitude for 10 years.

New Code,
"Killing by
Falsehood." Causing death or injuries by persuading a person to enter deep water under the impression that it is shallow; by wilfully deceiving him as to the condition of a decayed boat or bridge and causing him to embark in or cross thereon; by

Revised Code,
Sec. 187. the wanton discharge of firearms, bows or arrows in an inhabited place (the mere offence of discharging such even where no injury is caused

New Code,
"Killing or
Wounding
by Horses or
Carriages." being punished by penal servitude for 30 days); by rapidly driving a horse through a street or market place; or by pitfalls or gins laid in inhabited places without the exercise of reasonable caution or without erecting notices warning

Revised Code,
Sec. 190. people against them. In both these last cases a mitigation of one degree shall be allowed in the punishment, and of four degrees if the pitfalls or

gins have been laid in wild and uninhabited regions, and even if death is caused, the punishment shall not exceed penal servitude for 10 years.

MANSLAUGHTER.

Manslaughter comprises all cases in which death is caused by an accident which it would have been impossible to have foreseen or provided against, such as may occur in the pursuit of game, or be caused by tiles or stones thrown for any lawful purpose and accidentally striking a by-stander, by falling on a by-stander from a scaffold or other high situation, or by a horse that takes fright and runs away when being driven or that is being rapidly driven on account of public business. In all these cases the punishment which is that prescribed for the offence of murder in an Affray may be redeemed by the payment to the family of the killed person of the fine mentioned in the (51) following table, to be devoted to the defrayal of the burial expenses of the person killed. If injuries only and not death are accidentally caused in any of the ways above mentioned, then the punishments, which are those prescribed in the law of Assault contained in the following chapter, may in like manner be redeemed by the payment to the person injured of one or other of the fines mentioned in the following table, to be devoted to the defrayal of the medical expenses incurred in his treatment.

New Code,
"Killing or
Wounding by
Accident."

TABLE.

| Killing. | Maiming and Deforming. | Cutting and Wounding, and Heavier Injuries. | Injuries less than Cutting and Wounding. |
|---|---|--|---|
| Homicide—punishable by penal servitude for life. Commutable, if accidental, by the payment of 40 <i>yen</i> . | Maiming by depriving a person of the power of a limb or of the sight of an eye—punishable by penal servitude for three years. Commutable, if accidental, by the payment of 20 <i>yen</i> . | Breaking a tooth or a finger, dimming the sight of an eye, disfiguring an ear or the nose, fracturing a bone, and scalding or burning a person—punishable by penal servitude for 100 days. Commutable, if accidental, by the payment of 5 <i>yen</i> . | Hurting a person by a blow or kick—punishable by penal servitude for thirty days. Commutable, if accidental, by the payment of 1 $\frac{1}{2}$ <i>yen</i> . |
| | Deforming by blinding a person of both eyes, breaking both limbs, striking an old wound, pulling out the tongue, or injuring the private parts—punishable by penal servitude for 10 years. Commutable, if accidental, by the payment of 35 <i>yen</i> . | Breaking two or more teeth or fingers, or pulling out the hair—punishable by penal servitude for one year. Commutable, if accidental, by the payment of 10 <i>yen</i> . | Hurting with a mallet, stick, etc.—punishable by penal servitude for forty days. Commutable, if accidental, by the payment of 2 <i>yen</i> . |
| | | Breaking a rib, injuring the sight of both eyes, or wounding with any edged tool or weapon—punishable by penal servitude for two years. Commutable, if accidental, by the payment of 15 <i>yen</i> . | Inflicting an internal injury so as to cause vomiting of blood—punishable by penal servitude for eighty days. Commutable, if accidental, by the payment of 4 <i>yen</i> . |

(53) The above is a general account of the Law of Homicide, but there are, in addition, a large number of sections in the present chapter describing the procedure that is to be adopted in certain special cases, the modifications which are to be made in the punishments already detailed in cases where special relations exist between the offender and the victim, or where the crime has been committed under aggravating or extenuating circumstances, and also treating of some offences which are akin to homicide. These cases are as follows :—

INFANTICIDE.

Infanticide by relatives is to be treated according to the law of Preconcerted Murder or Wilful Murder, as the case may be, of a relative, and a nurse who is guilty of it at the instigation of a relative is to be considered a participator.

Revised
Code, Sec.
164.

MURDER IN SELF-DEFENCE.

A person who, on learning that others are planning his murder, assaults and slays them instead of appealing to the authorities, shall be punished as having committed Wilful Murder; if again he slays them when they are about to put their design into execution but when a chance of escape was still open to him, he shall be punished under the law entitled "Killing an Unresisting Prisoner" that is contained in the chapter on "Arrest;" but no penalty shall attach to a person who slays others that are actually engaged in an attempt on his life.

Revised
Code, Sec.
163.

MURDER OF ADULTERERS.

No punishment shall be inflicted on a husband who, on discovery of a wife or concubine in the act of committing adultery with a lover, forthwith kills either or both the guilty parties, and if he only kills one of them the survivor shall, if the

New Code,
"Killing
Adulterers."

wife, be punished by the penalty provided by the law of "Unlawful Sexual Intercourse" in the chapter entitled "Rape and Adultery," and if the lover, by (54) penal servitude for 10 years. If, however, the husband do not kill either of them until after a lapse of time from the commission of the adultery, he shall be punished according to the law of "Murder in an Affray," a mitigation of two degrees being permitted in the punishment for the murder of the lover and of five degrees for that of the wife, and the surviving lover or wife, as the case may be, shall be punished under the law of "Unlawful Sexual Intercourse." In order to entitle the husband to these mitigations the fact of the adultery having been previously committed must be proved by clear and incontrovertible evidence, and in cases where there is any doubt whatsoever, he shall be punished by the penalties contained in whichever of the Laws "Wilful and Deliberate Murder," "Wilful Murder," or "Murder in an Affray" may apply to his case.

On the other hand, if a wife or concubine conspire with a lover with whom she has committed adultery and they together murder the husband of the former, she shall be punished by decapitation accompanied with exposure of the head, and the lover by decapitation. If, however, the lover slay the husband without the knowledge of the wife or concubine, the latter shall be punished by penal servitude for life, unless it is clearly proved that she had broken off the adulterous connection before such murder, when she shall be liable only to the punishment for adultery, and if the wife or concubine slay the husband, if it is clearly proved that she did so without the concurrence of the lover, the latter shall be punished only by the penalty contained in the law of "Un-

Revised
Code, Sec.
169.

Revised
Code, Sec.
171.

Revised
Code, Sec.
170.

lawful Sexual Intercourse." If two persons who have been guilty of Unlawful Sexual Intercourse together attempt to commit suicide, but one of them is rescued before the design has been carried out, such survivor shall be punished by penal servitude for 10 years, and if both are prevented they shall be punished under the law of "Quarrelling and Fighting" according to the extent of the injury they have inflicted on themselves, but allowed a mitigation (55) in the penalties therein provided of one degree.* If a female dies from the consequences of an attempt to effect abortion, the lover at whose instigation she may have made the attempt shall be sentenced to penal servitude for 3 years.

New Code,
"Planning
to die
together."

Revised
Code, Sec.
199.

Revised
Code, Sec.
198.

POISONING.

A druggist who sells poisonous drugs knowing that they are to be used for an unlawful object shall be considered as a participator in any crime which the purchaser may afterwards commit by means of these drugs, but his punishment shall not exceed penal servitude for 10 years. The purchaser shall undergo the statute punishment of whatever crime he may commit by means of the poison, and, if he commit none, he shall, for the mere offence of purchasing poison with felonious intent, be sentenced to penal servitude for 2½ years. Causing illness by the administration of any noxious drugs shall be punished by

New Code,
"Murder by
Poisons."

Revised
Code, Sec.
174.

* The Practice which is forbidden by this Law is extremely common in Japan, and the Yedo daily newspapers very frequently describe cases of its occurrence. It is called "shinjiu," a word written with two Chinese characters signifying "human passions" and "death," and it is usually committed by lovers, the circumstances of whose position forbid them enjoying each other's possession; as, for example, by a girl bound to a term of service in a tea-house and a lover without sufficient means to redeem her. The form of death most frequently chosen is that of drowning, the two suicides usually binding themselves tightly together beforehand.

New Code.
"Death and
Injuries
caused by
Quack Phy-
sicians."

penal servitude for 80 days. A quack physician, who accidentally kills a patient by improper treatment, shall be allowed to commute the punishment provided for Murder in an Affray by the payment of the usual fine, but a physician whose patient dies under improper treatment designedly adopted in order that the cure of the disease may be prolonged and greater emoluments obtained shall be decapitated.

ATTRIBUTING THE CRIME OF MURDER TO AN INNOCENT PERSON.

New Code,
"Using
dead bodies
to incrimi-
nate."

Parents or Grandparents guilty of killing their children, and masters their servants shall, (56) if they afterwards attribute the crime to another and innocent person, undergo a punishment increased one degree of severity over that usually inflicted for such homicide. A child or grandchild, who throws suspicion on another person of having caused the death of a parent who has died a natural death shall be punished by penal servitude for 3 years; a junior relative who in like way throws suspicion on another person of having caused the death of a senior relative in the second degree of relationship, by penal servitude for 2 years, a further reduction of one degree of severity in the punishment being made for every successive degree by which the relationship becomes more remote, and a senior relative who is guilty of the same crime in the case of a deceased junior, or a servant in that of a master, shall be punished by penal servitude for 80 days.

Revised
Code, Sec.
179.

WIFE MURDER

Revised
Code, Sec.
183.

A husband who kills a wife for using abusive language towards or assaulting his parents or grandparents, instead of appealing to the autho-

rities, shall, if information of his crime be given to the authorities by the parents, be punished by penal servitude for 1 year, and by penal servitude for 90 days if in the assault the wife has inflicted any wounds on either parents or grandparents. No penalty shall attach to the husband if the wife commit suicide after having been beaten or scolded by him for a fault of this kind.

MURDER OF A SERVANT.

A master, who of himself and without reference to the authorities, kills a servant who has been guilty of a capital offence, shall be punished by penal servitude for 80 days. No penalty shall attach to a master for striking or beating a servant, unless cutting wounds be inflicted, when he shall be sentenced to a punishment three degrees less severe than that provided in the law of assault for ordinary cases, and if the death of the servant result (57) from such beating, the punishment shall be penal servitude for 10 years.

Revised
Code, Sec.
184.

MURDER OF SEVERAL MEMBERS OF ONE FAMILY.

A person who slays three or more members of one family, whether relatives or servants, or three or more persons who, though not resident under the same roof, are closely related, either preconcertedly, in connection with an act of incendiarism or robbery, or in any other way, or who deliberately mangles the body of a person he has slain, or commits murder by a slow and painful process, shall be punished by decapitation accompanied with exposure of the head.

New Code,
"Murder of
three or more
members of one
household."
Revised Code.
Sec. 173.

TERRIFYING A PERSON INTO THE COMMISSION OF SUICIDE.

New Code,
"Causing
death by fearful
threats." A person who by threats of violence used in connection with any dispute about lands, tenements, or money matters, or an official who by threats conveyed through an underling on any subject not connected with public business terrifies another into the commission of suicide, shall be punished by penal servitude for 100 days, and by decapitation if the threats were used in connection with an attempted robbery or rape, irrespective of whether the last named crimes were accomplished or not.

MURDERS BY LUNATICS.

Now Code,
"Murder by
Lunatics."
Revised
Code, Sec.
195 and 198. A lunatic who commits murder shall pay to the family of the murdered man a fine similar to that provided as the amount of commutation to be paid by a sane person guilty of the offence of manslaughter, and in addition be sentenced to close confinement for life either in the care of his family or in the prison, but, should he return during such confinement to a natural frame of mind, this sentence shall be amended to one of penal servitude for 5 years. His lawful guardian, for not in the first instance having exercised a proper supervision over him, shall be punished by penal servitude for 90 days, and for 40 days if the lunatic had been guilty of wounding only.

Revised Code,
Sec. 196. (58) The lawful guardian of any lunatic who commits suicide shall, for the same reason, be punished by penal servitude for 40 days.

COMPROMISING THE CRIME OF MURDER.

Now Code,
"Compromis-
ing Murders." Any person who privately compromises the murder of parents, grandparents or husband, shall be punished by penal servitude for 3 years,

and every person who privately compromises the murder of a senior relative in the second degree of relationship, by penal servitude for 2 years, and that of a relative of a more remote degree by a penalty reduced one degree in severity for each additional degree of remoteness in the relationship. If the offence be committed by a senior relative in the case of the murder of a junior, he shall be punished one degree less severely than he would have been had their respective situations been reversed; if it be committed by a parent, grandparent, or husband in the case of the murder of a child, grandchild, or wife the punishment shall be penal servitude for 80 days; if by an ordinary person, penal servitude for 60 days; if by a master, in the case of the murder of his servant, penal servitude for 70 days, and if by a servant, in the case of the murder of his master, penal servitude for 100 days. If, however, any or other property is in any of the above instances received by the offender he shall be punished by the most severe law applicable to his case, whether it be the present one or that of "Bribery for an Unlawful Object."

Revised Code,
Sec. 200.

CASTING AWAY CORPSES AND VIOLATION OF GRAVES.

Any one who secretly removes from his own to another lot of ground a foundling or sick person, or a corpse, or who buries such corpse without informing the authorities, shall be punished by penal servitude for 90 days, and for 100 days if he throws the body into a river, a mitigation of one degree being however allowed if the body be afterwards recovered. If an offender guilty of this offence despoils the body of clothing or valuables, he shall be liable to any heavier punishment (59) than that contained in this law

New Code,
"Transferring
a Dead Body
from one's own
to another's
Lot of Land."
Revised Code,
Sec. 200.
Revised Code,
Sec. 202.

Revised
Code, Sec.
203-204.

Revised
Code, Sec.
205.
Revised
Code, Sec.
201.

not exceeding penal servitude for 10 years which the law of common robbery would entail if such clothing or valuables were treated as the proceeds of a theft. Burying a person who has died an unnatural death, or throwing away the body of one's own child without reference to the authorities, shall be punished by penal servitude for 40 days; and abandoning the body of a person who has died while travelling in company by penal servitude for 80 days. Violation of graves shall, if the coffin be exposed, be punished by penal servitude for 1 year, by penal servitude for 3 years if the corpse be exposed, and by penal servitude for 5 years if the corpse be mutilated.

FAILING TO INTERFERE AND PREVENT AN ACT OF
VIOLENCE.

New Code,
"Not giving
information
of an injury
known to be
intended."
Rev. Code,
Sec. 237.

A person who, knowing that his companion meditates the commission of an act of violence, does not restrain him beforehand, or who fails to give information to the authorities afterwards, shall be punished by penal servitude for 90 days.

CHAPTER V.

QUARRELLING AND FIGHTING.

(60) This chapter contains the several penalties which are to be inflicted on persons guilty of assaults whether committed without provocation or necessity, in the case of a combat between two persons, or in that of an affray between a number in which all parties are guilty of inflicting injuries on their several adversaries. The punishments vary according to the more or less severe nature of the wounds that may be inflicted, but the chapter is extended to an almost immoderate length by the minute detail of variations that are to be made in the punishments provided for ordinary cases in those instances in which a special relationship exists between the parties to the offence. The chapter contains 14 sections of the New, and 26 sections of the Revised Code, and these may be summarized under the respective headings of Assaults on Ordinary Persons, Assaults on Officials, Assaults on Relatives, and Other Special Cases.

ASSAULTS ON ORDINARY PERSONS.

A common assault committed by striking a person with the hand or foot shall be punished by penal servitude for 20 days, and for 30 days if a wound, such as a swelling or inflammation, is caused, or if the assault is committed with tiles, stones, or clods of earth, by sticks, or the back or hilt of a sword. If a wound is caused in any of the latter cases, or if part of the hair is torn off, the punishment shall be penal servi-

New Code,
"Quarrelling
and Fighting."
Revised
Code, Sec.
208.

Revised
Code, Sec.
209.

Revised
Code, Sec.
214.

tude for 40 days. A (6r) person who inflicts slight wounds during an affray with scythes, sickles, or edge tools shall be punished by penal servitude for 70 days, a reduction of three degrees being permitted in case the wounds are very trivial, but in general, if blood is drawn or caused to be vomited, an internal injury caused, or the assaulted person stunned, the punishment shall be penal servitude for 80 days. If a finger or tooth is broken, an eye injured but not so as to cause blindness, an ear or nose disfigured, a bone fractured, a scald or burn caused, or any unclean substance thrust into the mouth or nose, the punishment shall be penal servitude for 100 days; for 1 year if two fingers or two teeth are broken, or if the head is entirely denuded of hair; for 2 years if a rib is broken, both eyes are injured, a wound inflicted with an edged tool, or if a pregnant woman is assaulted in such a way as to cause miscarriage; for 3 years if a person is maimed by a limb or any bone in the body being broken, or an eye being totally blinded; for 10 years, if a person is deformed by two limbs being broken, both eyes being blinded, an old wound being struck, the tongue being pulled out, or the private parts injured; and when this last mentioned punishment is inflicted, a sum of 20 *yen* is also to be paid to the injured person to defray medical expenses. In case an assault of the degree of gravity last mentioned is committed by two persons, each of whom blinds the person assaulted of one eye, the one who first blinded an eye shall be punished for maiming and the one who blinded the second eye for deforming, but the sum to be paid for medical expenses shall be equally apportioned between both offenders. In this case the contriver of the assault, whether he was one of those who took

Revised
Code, Sec.
217.

Revised
Code, Sec.
220.

part in the commission or not shall undergo the heaviest punishment, mitigated one degree.

In the case of a number of persons agreeing to commit an assault jointly, each shall be punished according to the gravity of the wounds committed by him, and the same rule shall be (62) observed in that of a combat between two persons or of an affray between several, in which all parties inflict wounds on each other, with the exception that the punishment of the person or persons who only returned blows which they may have received, and on whose side the right and justice of the dispute lay, shall be mitigated two degrees, unless the assault has been committed on an elder brother or sister or on an uncle or aunt. If the death of the person who commenced an affray results from injuries inflicted on him by the person who only returned blows, the punishment is to be penal servitude for 10 years, but a mitigation of one degree may, in the discretion of the judge, be granted when the circumstances justify it.

Revised
Code, Sec.
12,2

ASSAULTS ON OFFICIALS.

A common assault committed by a person not in office on an official of Imperial appointment shall be punished by penal servitude for 5 years, for 10 years if a swelling or inflammation is caused, and by hanging if a cutting wound is caused. On an official of Government appointment a common assault shall be punished by penal servitude for 2 years, for 3 years if a swelling or inflammation is caused, for 7 years if a cutting wound is caused, and by hanging if maiming is caused. On an official of departmental appointment, a common assault shall be punished by penal servitude for 90 days, for 1 year if a swelling or inflamma-

Revised
Code,
Sec. 216.

Revised
Code, Sec.
217.

tion is caused, for 3 years if a cutting wound is caused, for 5 years if maiming, and by hanging if deforming is caused. If an official of departmental appointment assault one of Imperial appointment he shall be punished by penal servitude for 90 days, for $1\frac{1}{2}$ years if a swelling or inflammation is caused, for 5 years if a cutting wound is caused, and by hanging if maiming is caused. If again a departmental official assault one of Government appointment, or one of Government assault one of Imperial appointment, he shall be punished by penal servitude for 70 days; for 100 days if a swelling or inflammation is caused; for 3 years if a cutting wound, and (63) for 10 years if maiming is caused; and by hanging if deforming is caused. In all the above instances if the assaulted person die of the wounds that have been inflicted on him, the offender shall be punished by decapitation. When an official of either of the higher grades commits an assault on one of the grade below him he shall be punished according to the law of assault on ordinary persons.

Revised
Code, Sec.
218.

ASSAULTS ON RELATIVES.

New Code,
"Beating and
Wounding a
Wife or Con-
cubine."
Revised
Code, Sec.
223.

Husband and Wife:—No penalty shall be inflicted on a husband for an assault on his wife or concubine of any less degree of gravity than one in which a cutting wound is caused. In this and more serious cases he shall undergo the penalties provided in the ordinary law of assault, mitigated however two degrees in the case of the wife and four in that of the concubine, and no proceedings shall be taken against him unless a charge is laid by the wife or concubine who is assaulted. When death results from the wound the penalty shall be penal servitude for life in the case of the wife, and for five years in

that of the concubine, and if the crime be that of wilful murder the punishment shall be hanging. Where, however, the wife is guilty of a common assault on her husband she shall be punished by penal servitude for 100 days; for any form of assault more serious than that of cutting and wounding by the ordinary penalty increased three degrees; for one in which maiming or deforming is caused, by penal servitude for life; for one in which death is caused, by decapitation; and if the husband is wilfully murdered, by decapitation accompanied with exposure of the head. An increase of one degree shall be made in these penalties in the case of a concubine assaulting the husband. A wife assaulting a concubine shall be liable to the same punishments as those provided for a husband assaulting a wife, and a concubine assaulting a wife to those provided for a wife assaulting a husband.

New Code,
"Assault-
ing a
Husband."
Revised
Code, Sec.
222.

(64) A wife assaulting a relative of her husband shall be liable to the same penalties as the husband would have been were he the offender. A husband on the other hand who assaults his wife's parents shall be punished by penal servitude for 90 days, and if the assault amount to the infliction of a cutting wound by the punishment provided for ordinary cases, increased one degree; by penal servitude for life if deformity is caused and by decapitation if guilty of wilful murder.

New Code,
"Assaulting
Husband's
Relatives."

New Code,
"Beating
and Wound-
ing a Wife or
Concubine."

Parents and Children:—Children or grandchildren guilty of a common assault on their parents or paternal grandparents, or a wife or concubine on those of her husband, shall be punished by penal servitude for 10 years, and for life if a cutting wound is caused; by decapitation if death results from the assault, and by

Revised
Code, Sec.
228.

decapitation accompanied with exposure of the head if the case be one of wilful murder. Even should the death of a parent or grandparents or of a husband's parent or grandparent be caused in any of those ways, that come under the category of 'Accidental Killing,' the child by whose act death was caused shall be punished by penal servitude for 3 years and for 1 year if wounds only are so caused; and shall not be allowed to take advantage of the privilege of compounding the statute punishment by the payment of a fine which is allowed in ordinary cases of accidental killing and wounding.

New Code,
"Assaults by
Parents or
Grandparents."

A parent or grandparent beating a child or grandchild shall be liable to no penalty; but for the wilful murder of such shall be punished by penal servitude for 3 years, and for 10 years if the offence be committed against a step-child. Where the death of a child is caused by an excessive beating administered by a parent on account of any transgression on its part, the parent so offending shall be punished by penal servitude for $2\frac{1}{2}$ years. A step-mother cruelly beating a child without due reason shall undergo the punishment provided in the law of assault applicable to ordinary cases, mitigated, however, three degrees, and, if the death of the child ensues from the beating, (65) she shall be punished by penal servitude for 7 years.

Revised
Code, Sec.
230.

New Code.
"Assaulting
Relatives of
the 2nd
Degree."

Relatives of other Degrees of Relationship.—Assaulting an elder brother or sister, uncle or aunt, or maternal grandparents shall be punished by penal servitude for 2 years; for $2\frac{1}{2}$ years if a bruise or inflammation is caused; for 7 years if a cutting wound is caused; for 10 years if maiming, and for life if deformity is caused, and by hanging if the assaulted person

Revised
Code,
Sec. 224.

dies from the effect of the wounds. The wilful murder of any of these relatives shall be punished by decapitation accompanied with exposure of the head; accidental killing of them by penal servitude for 2 years, and accidental wounding by penal servitude for 100 days. In neither of these cases can the punishment be compounded by the payment of a fine. Assaulting a senior relative of the 3rd degree of relationship shall be punished by penal servitude for 1 year, and a senior relative of the 4th degree by penal servitude for 100 days, and in case of assaults of more serious nature, the offender shall be liable to an increase of one degree of severity in the punishment provided in the ordinary law for each successive degree of closer relationship that there is between the parties, commencing from the fourth. The punishment shall in all cases be penal servitude for life if the senior relative be assaulted so as to cause deformity, hanging if his death result from the assault, and decapitation if he be wilfully murdered.

Revised
Code,
Sec. 226.

New Code,
"Assaulting
Relatives of
3rd and
lower
degrees."

Revised
Code, Sec.
224.

Where the offence is committed by a senior on a junior relative no penalty shall attach to the former unless a cutting wound is caused, when punishment as provided in the ordinary law shall be inflicted according to the greater or less gravity of the wound, one degree of mitigation being, however, allowed for each successive degree of closeness of relationship that there is between the parties. Thus a mitigation of one degree shall be allowed if the parties be relatives of the 4th degree, two degrees if of the 3rd, and three degrees if of the 2nd. In any of these cases, if death ensue (66) from the assault the punishment shall be penal servitude for life, and hanging if the crime

New Code,
"Assaulting
Relatives of
and degree."

be that of wilful murder. Beating a younger brother or sister, a nephew or niece, or a daughter's child so as to cause death shall be punished by penal servitude for 3 years, and the wilful murder of any of these relatives by penal servitude for 7 years, but no penalty shall be inflicted if they are accidentally killed (*i.e.* in cases of manslaughter).

OTHER SPECIAL CASES.

New Code,
"Assaulting
Teachers."

The remaining sections of this chapter provide that in the case of a pupil assaulting his teacher or an apprentice his master, an increase of two degrees of severity shall be made in the punishment provided for ordinary cases, but not so as to make it exceed penal servitude for 10 years, unless death is caused, when the punishment shall be penal servitude for life; that in the case of an assault by a servant on the master of a house the punishment shall be penal servitude for 2 years, for 10 years if a cutting wound is caused, and for life if the master be deformed or if his death ensue from the assault; that if a servant commit suicide on account of having been scolded by his master for a transgression, the latter shall be punished by penal servitude for 70 days; that resisting Government officers in the execution of their duty, whether of collecting duties or enforcing any legal or public services, shall be punished by penal servitude for 60 days, for 80 days if the officer be assaulted, and by the ordinary punishment increased two degrees if wounds be caused, such punishment, however, not to exceed penal servitude for 10 years, unless the officer be killed, when it shall be decapitation;

Revised
Code,
Sec. 219.
New Code,
"Assaulting
Head of
Family."
Revised
Code,
Sec. 220.
Revised
Code, Sec.
221.
New Code,
"Resisting
and Assaulting
Government
Officers."

that disputing within the limits of the palace shall be punished by penal servitude for 50 days, fighting, by penal servitude for 100 days; fighting with swords by penal servitude for 5 years, and wantonly entering within the gate of the palace, by penal servitude for 50, and the palace itself by penal servitude for (67) 100 days; that, seizing a person, carrying him away, confining him in a private house, and there ill-treating and abusing him shall, even if no assignable injury be inflicted, be punished by penal servitude for 100 days, and if any injuries are inflicted, by a penalty two degrees more severe than that provided for ordinary cases. Where this offence is committed by a person hired for the purpose, the person so hired shall be deemed the accessory and his employer the principal in the offence; and, finally,—that a son or grandson shall render himself liable to no penalty for interposing in the defence of parents and immediately striking their assailants, unless the blow be such as to produce a cutting wound, when he shall be punished three degrees less severely than in ordinary cases, or death ensues from it when he shall be punished by penal servitude for 10 years. In order, however, to entitle him to the benefit of this law it must be proved that the blows were inflicted on the impulse of the moment and actually in defence of such parent, and it shall never be allowed in cases where a son combines with a parent and they together commit an assault, or where the son assaults a person with whom the parent is engaged in a dispute, even if he does so on the latter's order. A son or grandson shall also be liable to no penalty who slays the murderer of a parent on the spot and at the moment that the

New Code,
"Brawling
inside the
Palace."

Revised
Code, Sec.
275.

New Code,
"Forcible
Detention."

New Code,
"Assaulted
Parents."

Revised
Code, Sec.
233.

Revised
Code, Sec.
232.

murder has been committed, but if subsequent to such murder he deliberately frames a scheme of revenge and carries it out by himself, slaying the murderer then, he shall be liable to the ordinary punishment for Preconcerted and Wilful Murder.*

* This law affords a very striking illustration of the change which has come over the spirit of the Japanese legislators during the last few years. Avenging the murder of a parent in the manner that is here forbidden was until recently not only regarded as no crime but as a duty to be sternly discharged by the son, and the law in the "New Code" provided that a son who carried out such a duty should render himself liable to no penalty whatsoever, if only he had given notice beforehand to the authorities of his intention to do so.

CHAPTER VI.

ABUSIVE LANGUAGE.

(68) Persons guilty of using abusive language to others shall be punished by penal servitude for 10 days, and if two persons mutually abuse each other both shall be liable to this penalty. An increase of one degree of severity shall be made if the offence is committed by a commoner against the mayor of the offender's district, and of two degrees if against a policeman.

New Code,
"Abusing
people."

Revised
Code, Sec.
237.

When the offence is committed against Government officials, the penalty shall be penal servitude for 1 year if the official were of Imperial appointment, for 90 days if of Government appointment, and for 60 days if of Departmental appointment. If the offence is committed by an official of Departmental against one of Imperial or Government appointment the penalty shall be in the first case penal servitude for 60 and in the second for 40 days, and the latter penalty shall also be inflicted on an official of Government appointment guilty of the offence towards one of Imperial appointment. When, however, the offence is committed by an official of a higher against one of a lower grade punishment shall be inflicted as in ordinary cases.

Revised
Code, Sec.
234.

Revised
Code, Sec.
235.

Revised
Code, Sec.
236.

New Code,
"Abusing a
relative
within the
degree of
relationship
for which
mourning is
to be worn."

New Code,
"Abusing
the head of
the family."

(69) If the abusive language be used towards a senior relative of the 4th degree of relationship or towards a wife's parents, the punishment shall be penal servitude for 50 days; for 60 days if towards a senior relative of the 3rd degree; for 90 days if towards an elder brother or sister; for 100 days if towards an uncle, aunt, or maternal grandparent; and for 3 years if toward a parent or grandparent. A servant guilty of the offence towards the head of the house shall be punished by penal servitude for 80 days, and a wife towards any of her husband's relatives by the same penalty that would have been inflicted on the husband had he been the offender.

In all cases in which this offence is committed the abusive language must have been uttered in the presence of, and actually heard by, the person to whom it was addressed, or the penalties above detailed cannot be inflicted, and no proceedings can be taken unless a charge is formally preferred by the person offended against.

CHAPTER VII.

INDICTMENTS AND INFORMATIONS.

(70) The offences which are treated of in the chapter thus headed may be divided into two classes, viz, those which may be committed by officials and those which may be committed by the people in general.

Of the first mentioned class there are three offences, viz: 'Neglecting or Declining to receive an Indictment or Information properly preferred', 'Taking Cognizance of an Indictment or Information with one of the parties to which the officer is in any way connected or related', and 'Interfering or taking part in the conduct of cases in which the officer is personally interested'. The first two of these apply, of course, only to magisterial or police officers, the third to officials of all departments.

NEGLECTING OR DECLINING TO RECEIVE AN INDICTMENT OR INFORMATION PROPERLY PREFERRED.

Any magistrate who neglects or declines to receive and immediately act upon an information containing a charge of violent or other robbery, or of murder, shall be punished by penal servitude for 70 days,* and, if the

New Code,
"Not acting
on a charge."

* It is be remembered that the apparent severity of the penalties which are provided both in this and other laws, for offences committed by officials, is greatly modified by the provision contained in the "General Laws" under the heading "Officials," to the effect that the term of penal servitude mentioned as the punishment in the statute applicable to any offence which is not of a very disgraceful nature may, if it does not exceed 100 days, be commuted by the payment of a fine, and if it does exceed that period is to be replaced by "Imprisonment." The punishment that could be actually inflicted in this instance would (as will be seen by the table in the "General Laws") be a fine varying from yen 28 to yen 10½, according to the grade of the officials.

(71) charge be one of an offence against any of the laws contained in the chapters 'Quarrelling and Fighting,' 'Domestic Law,' or others, by a punishment two degrees less severe than that to which the accused person is properly liable, except that it is not in any case to exceed penal servitude for 70 days. In all instances, however, in which it can be proved that the offending officer has declined to receive the information on account of having been bribed by the accused party, he shall be punished by the penalties contained in the law of 'Bribery for an Unlawful Purpose' whenever the amount of the bribe which he has received is such as would render him liable to a heavier punishment than that which is herein provided.

IMPROPERLY TAKING COGNIZANCE OF AN INDICTMENT OR INFORMATION.

New Code,
"Permission
to decline to
act on a
charge."

No magisterial officer can take cognizance of an information laid before him if either of the parties interested in it is in any way related to him, has stood towards him in the position of either teacher or pupil or has been a personal enemy to him. In all these cases he is to call upon another officer to deal with the case, failing which he will be liable to a penalty of penal servitude for 30 days, even though in dealing with the case he may have been guilty of no act of injustice either in mitigating or aggravating the guilt of the accused person. If, however, he is guilty of this last mentioned offence in addition to that of receiving an information of any of the classes that are forbidden by this law, then he will be punished by the penalties provided in the law of 'Wilfully pronouncing an unjust sentence' that is contained in the chapter

"Judgment and Imprisonment" whenever they are more severe than those herein provided.

CASES IN WHICH OFFICIALS ARE PRIVATELY
INTERESTED.

(72) All officials involved in any dispute concerning marriage, pecuniary transactions, lands and tenements, and the like, are to plead through and cause their case to be conducted by a member of their household, and are not to interfere either directly or by addressing a written communication to the officers who have conduct of the case, otherwise they shall be punished by penal servitude for 30 days.

New Code,
"Private
plaints on
the part of
officials."

Of the offences of the second class of those into which this Chapter is divided there are four, viz.: 'False and Malicious Informations,' 'Informations against Relations,' 'Inciting and Promoting Litigation,' and 'Disobedience to Parents.' The first of these is of extreme importance owing to the system of Japanese criminal procedure in which, as will be explained hereafter, the prisoner is always the first witness examined, and is liable not only to a severe re-examination, but even to torture in case he may deny the charge preferred against him. The sections treating of this offence are accordingly of great length, and the penalties provided for its commission as severe as its seriousness demands.

FALSE AND MALICIOUS INFORMATIONS.

A person who lays a false and malicious charge against another shall suffer the same penalty that would have been inflicted on the person falsely accused had the charge been just and well-founded, and this penalty shall be enforced irrespective of the degree of gravity of the charge falsely preferred and without reference to whether the falsely accused person

New Code,
"False and
malicious
charges."

has undergone punishment or not before the discovery of the injustice, the only exception being that, where the charge has been of a capital nature and its falseness is discovered before the penalty is carried out, the informer shall be punished by penal servitude for life instead of by death. In cases where a person lays two charges against another, one of which is just and well-founded but the (73) other false and malicious, no penalty shall attach to him if the latter be of a less or equal degree of gravity with the former, as according to one of the provisions contained in the General Laws no increase would have been made in the punishment of the person so accused, even had both charges been just and well founded. Where, however, of two charges thus laid the true one is that which is the less grave, or where, though a charge is well founded, its degree of gravity is wilfully and maliciously exaggerated, the offender shall suffer a punishment equal to the difference between that provided for the offence which was justly and that provided for the one which was falsely and maliciously preferred, or between that provided for the falsely preferred greater and the justly preferred less offence, with the exception that, if the falseness or exaggeration be discovered before the excess of punishment over that which was justly due had been undergone by the accused, the false accuser shall be permitted to commute the whole of the penalty, provided it does not exceed that of penal servitude for 100 days, by the payment of a fine calculated at the rate of 25 *sen* for each period of 10 days. If, however, the penalty exceed that of penal servitude for 100 days, then the offender shall be permitted to commute only so much of the punishment as

exceeds this period. For the purpose of computing this excess, and also the punishment, when it exceeds penal servitude for 100 days, to be undergone by the offender in cases where the graver of two offences is falsely and maliciously preferred or where an offence is wilfully and maliciously exaggerated, penal servitude for 1 year shall be estimated as being equivalent to 120 blows, for $1\frac{1}{2}$ years as being equivalent to 180 blows, for 2 years to 240 blows, for $2\frac{1}{4}$ years to 300 blows, for 3 years to 360 blows, for 5 years to 420 blows, for 7 years to 480 blows, and for 10 years to 540 blows, 60 blows being in each instance taken as the equivalent of one degree of punishment. This mode of computation and (74) also that of inflicting the penalties above detailed are illustrated in the following examples.

Preliminary matter.
"Wilfully aggravating light offences."

a.—Preferring a charge of common assault, which is an offence punishable by penal servitude for 20 days, when the offence really committed was only that of using abusive language, which is punishable by penal servitude for 10 days. The difference in this case between the punishment due to the falsely preferred greater and justly preferred less offence is 10 days, and penal servitude for this period shall be inflicted on the accuser if the accused have actually undergone the first mentioned penalty before the discovery of the injustice, but, if he have not, the accuser shall be permitted to commute the punishment by the payment of a fine of 25 *sen*.

b.—Preferring a charge of common robbery of 60 *yen*, punishable by penal servitude for $1\frac{1}{2}$ years, when the offence really committed was that of a common robbery of 10 *yen* only, punishable by penal servitude for 70 days. As above stated penal servitude for $1\frac{1}{2}$ years is equivalent

to 180 blows and for 70 days to 70 blows. The difference therefore of 110 blows, or estimating each blow as being equivalent to penal servitude for 1 day, penal servitude for 110 days ought to be required on the false accuser, but, as the law recognizes no period of penal servitude between that of 100 days and that of 1 year, the 10 days by which the difference in this instance exceeds the former period shall be disregarded, and the false accuser sentenced only to penal servitude for 100 days. He shall also be allowed to commute the whole of this penalty by the payment of a fine of 2.50 *yen* if the falseness of his accusation be discovered before the accused had undergone the excess of punishment over that to which he was justly liable.

c. Preferring a charge of assault in which injury not amounting to total blindness was caused to both eyes—punishable by penal servitude for 2 years—when in reality the injury (75) was caused to one eye only—the offence in this latter case being punishable by penal servitude for 1 year. The difference in this case is 1 year, and the full penalty of penal servitude for this period shall be inflicted on the accuser if the accused has undergone the excess of punishment over that due to the offence with which he was properly charged before the discovery of the injustice. If not, however, the period of 1 year shall be computed as being equivalent to 120 blows, and penal servitude for 100 days as the equivalent of 100 blows shall be inflicted on the accuser, but he shall be allowed to commute the remaining 20 blows by the payment of a fine of 50 *sen*.

d.—Preferring a charge of violating a grave and mutilating the body that was buried in it—punishable by penal servitude for 5 years—when

the offence really committed was that of throwing into a river a dead body found within the limits of a lot of land belonging to the accused—punishable by penal servitude for 90 days. The equivalent of penal servitude for 5 years is 420 blows, and the punishment therefore that ought to be requited on the false accuser is the equivalent of 330 blows. There being, however, no exact equivalent of this number, that below it which approaches it most nearly is taken instead. This is 300 blows, and the additional 30 being disregarded, the equivalent of 300 blows, viz, penal servitude for $2\frac{1}{2}$ years is to be inflicted on the false accuser. If, however, the falseness of the accusation had been discovered before the accused had undergone the excess of punishment, over that due to the offence with which he was justly charged, the accuser shall be sentenced to penal servitude for 100 days as the equivalent of 100 blows, and be permitted to commute the punishment that would otherwise have been inflicted on him as the equivalent of the remaining 230 blows by the payment of a fine of *yen* 5.75.

In all cases where a charge is preferred against two or more persons, the fact that the (76) charge is, in the case of one of them, just and well founded shall not be considered as any extenuation of its wilful and malicious falseness in the case of another, and any instance of this kind shall therefore be dealt with in accordance with the provisions above detailed. Where the false accusation is contained in a memorial addressed to the Emperor the punishment of penal servitude for 2 years shall be the least penalty inflicted on the accuser, the offence being considered as a "False statement wilfully made to the Emperor" and punished accordingly

under the law contained in the chapter "Forgery and Fraud," in all cases in which the provisions contained in this law would not admit of the infliction of so severe a penalty. If the relatives of a prisoner who has been justly and properly condemned groundlessly appeal against such condemnation, they shall be punished for doing so by a penalty three degrees less severe than that passed on the prisoner, such penalty being limited, however, to penal servitude for 100 days.

INFORMATIONS AGAINST RELATIONS.

One of the provisions of the General Laws enacts that relatives shall render themselves liable to no penalty, or only to a mitigated penalty, for concealing each other's offences or for assisting each other to escape the consequences of such offences. Not only, however, is this privilege allowed, but by the present law the following severe penalties are provided for those persons who, disregarding the claims and ties of consanguinity give information to the authorities of offences that have been committed by their relatives, even though such information prove to be true and well-founded.

New Code,
" Violation
of family
ties."

Revised
Code, Sec.
240.

A person who lays an information against a parent, paternal grandparent, husband, husband's parent or grandparent, shall in all cases be punished by penal servitude for 2½ years, and by penal servitude for life if the information be false and malicious. Where the information is laid against maternal grandparents or a senior relative of the 2nd degree of relationship, the penalty shall be penal servitude for 90 days; for 80 days if against a senior relative of the 3rd degree; for 70 days (77) if against a senior relative of the 4th degree of relationship, and for 60 days if against a wife's parents. If, in any of the above cases

the information be false and malicious, the accuser shall be punished by a penalty 3 degrees more severe than that provided for ordinary cases, but limited to penal servitude for 10 years. A pardon shall also always be granted for crimes, information of which is first given to the authorities by a person within any of the degrees of relationship above mentioned to the offender, in the same way as though the latter had himself made a voluntary confession, except that of the 4th degree, in which case, instead of a full pardon a mitigation of 3 degrees only in the punishment due to the accused shall be allowed. The provisions in this law shall not be enforced in the case of those laying a just and well founded information against a mother, adopted mother, or step mother of the murder of a father, against adopted parents of the murder of natural parents, or against any relative not of the 1st degree of relationship by whom the accuser has been robbed or maltreated. In all these cases appeals may be made to the authorities, and the proper punishments shall be inflicted on the persons that have been so justly accused.

If the information be laid by a senior against a junior relative within the 2nd or 3rd degrees of relationship, the latter shall be pardoned for the crime, information of which is thus given, and, if against a junior relative of the 4th or 5th degrees, the punishment which the latter would have suffered had the information been given by a stranger shall be mitigated 3 degrees. In the case of false and malicious informations on the part of senior against junior relatives, the ordinary punishment to which the accuser would have been liable had the information been laid against a stranger shall be mitigated 1

degree if the junior relative falsely accused were within the 4th or 5th degrees of relationship, and 2 degrees if within the 2nd degree of relationship. No penalty shall be inflicted on a parent or paternal or maternal grandparent who lays a false and (78) malicious information against a child, and a husband who lays such information against a wife, a wife against a concubine, or a master against a servant shall, in each instance, be allowed a mitigation of 3 degrees in the ordinary punishment. A servant, on the other hand, who lays an information against a master shall be punished by penal servitude for 60 days if the charge be just and well founded, and if it be false and malicious by the ordinary penalty increased 3 degrees, provided such increase does not make the punishment exceed penal servitude for 10 years.

INCITING AND PROMOTING LITIGATION.

New Code,
"Inciting
litigation."

A person who incites another to lay an information before the authorities, and who in drawing up the plaint wilfully exaggerates the circumstances of the cases, shall be treated as a participator with the false accuser and punished accordingly. Any one, again, who hires another to prefer a false charge shall be punished as though he had himself preferred the false charge, and the person hired shall be punished either under this law or else under that of 'Bribery for an Unlawful Purpose' if the amount of wage he may have received be such as to render him liable to a heavier penalty than that herein provided. No penalty shall, however, attach to one who advises or draws up a plaint on behalf a rude and a unlettered person unable to properly state his own wrongs, if in doing so he is not guilty of any deviation from the truth either in the way of exaggeration or extenuation.

DISOBEDIENCE TO PARENTS OR GRANDPARENTS.

Children or grandchildren disobeying the commands of their parents or grandparents shall, if information of the offence be laid before the authorities by the parent or grandparent so offended against, be punished by penal servitude for 100 days; and children or grandchildren abandoning and neglecting to provide for the maintenance of old and decrepit parents or grandparents shall be punished by penal servitude for 2 years.

New Code,
"Disobedience
to parents."

Revised Code,
Sec. 241.

CHAPTER VIII.

BRIBERY AND CORRUPTION.

In this Chapter are described all offences which pertain to the acquirement of unlawful gain otherwise than by an act of robbery. These offences are of three kinds, viz: "Bribery for an Unlawful Object," "Bribery for a Lawful Object," and "Pecuniary Malversation."

New Code,
"Preliminary
matter."
New Code,
"Officials
receiving
presents."

The first offence is the one of which an official shall be convicted, who either prior or subsequent to the decision of any matter submitted to him, receives or agrees to receive a present of money or other articles from a suitor or a person under his jurisdiction on the specific understanding that he shall commit an act of injustice, or as a reward for an act of injustice which he has already committed for the benefit of the giver, or who, on the false plea of public service levies any unjust or unlawful contribution and appropriates it to his own benefit, or who by threats and violence extorts money from persons under his jurisdiction.

New Code,
"Receiving
presents after
the decision of
any matter."
New Code,
"Levying
contributions
on public ac-
count."
New Code,
"Officials
soliciting
presents."

New Code,
"Levying con-
tributions on
public ac-
count."

New Code,
"Officials
soliciting
presents."
New Code,
"Receiving

The second offence is the one of which an official shall be convicted who receives or agrees to receive a present on the specific understanding that he shall, for the sake of the giver, commit some act which is not in itself (80) an injustice; who levies, though without using the plea of public service, any unjust contribution for his own benefit; who, on the strength of his influence and authority, borrows

or solicits money from the people under his jurisdiction; who receives from a foreigner any present other than that of eatables or such articles as may be reasonably supposed to be given as mementoes of friendly intercourse; or who, if a police officer, suppresses the discovery of and appropriates any stolen property that may have come into his possession in the course of the discharge of his duty.

The third offence is that of which any person, official or otherwise as the case may be, shall be convicted, who is guilty of unlawfully receiving any presents when the offence does not come under that of receiving a bribe to do any specific act either lawful or unlawful for the benefit of the giver; who levies any unjust or unlawful contribution on the plea of public service but does not appropriate it to his own benefit; who makes a present to an official after the decision of a cause, or who offers a bribe to one whether with the wish of inducing him to perform an act which is in itself an injustice or not; who on taking charge of a jurisdiction accepts present from those under it; who orders the payment of a sum greater than what is right and proper as medical expenses in the case of injuries inflicted in an assault; who collects an excessive amount of taxes, or who in the construction of public works is guilty of an unnecessary or extravagant expenditure of either money or labour.

The punishments that are to be inflicted on persons guilty of any of these three offences are given in the table that is contained in the chapter on "Robbery and Theft."* In each case the sums that may have been received on different occasions shall be added together,

* Vide page 30,

and punishment imposed for the total just as though it had been obtained by one act of (81) bribery or pecuniary malversation, as the case may be. In the infliction of the punishments detailed in the table the following mitigations shall be made whenever the circumstances of the case or the position of the offender justify them.

New Code
"Officials
receiving
presents."

A mitigation of one degree if the offender in an act of bribery either for a lawful or an unlawful purpose is an unclassified official, or if the offender has only acted as agent between the giver and receiver of a bribe, the punishment being in this instance limited to penal servitude for $1\frac{1}{2}$ years, provided the offender has not himself shared in the bribe. A similar

New Code,
"Receiving
presents after
the decision of
any matter."

mitigation if an official has agreed to accept a bribe, but has not yet actually received it. A

New Code,
"Officials
soliciting
presents."

mitigation of three degrees in the punishment provided for extortion of money by officials from persons under their jurisdiction if the offence be committed by one who has been discharged from office, against persons who were under his

New Code,
"Members
of official's
households
soliciting
presents."

jurisdiction prior to such discharge, and of two degrees if it be committed by a member of the household of an official on the strength of his master's influence. In this last mentioned

instance the official, if aware of the illegal acts committed by the member of his household, shall be punished as a participator, but such punishment shall not exceed penal servitude for 3 years. A mitigation of one degree in the

Revised
Code, Sec.
244.

punishment provided for the offence of pecuniary malversation in the case of persons who, though they have offered presents to officials have not done so with the wish to procure an injustice, or have only done so after the decision of a cause in which they are interested.

CHAPTER IX.

FORGERY AND FRAUD.

(82). Under the head of forgery the offences of "Forging public or private documents," "Counterfeiting official or private seals, the currency of the realm, or weights, scales, or measures" are described, and, under that of fraud, those of "Falsely and Deceitfully addressing the Sovereign," "Falsely Representing one's self as a Government official," "Pretence of sickness or death in order to escape public service or the penalties attaching to a previous offence," and "Inciting people to transgress the Laws."

FORGING PUBLIC OR PRIVATE DOCUMENTS.

Forging a document which purports to, or falsifying in any way one which does emanate from the Council of State, shall be punished by penal servitude for 2 years. This penalty shall be mitigated two degrees if the offence be committed in respect to a document of any of the chief public offices, and five degrees if in that of any other public document whatsoever. A further remission of one degree shall be made in each case if the offence be discovered before the document forged or tampered with has been made use of. If the offence be committed with an ulterior corrupt motive punishable by a more severe penalty than that herein provided for the crime of forgery, the heavier penalty shall be inflicted instead of that contained in this law, and in all cases the officials of the department

New Code,
"Forging
Official
Documents."

Revised
Code,
Sec. 246.

on (83) which the forgery is committed shall, if while cognizant of the offence they do not take steps to prevent its accomplishment, be punished as participators with the actual offender. Forging any private document, that is one which does not relate in any way to public business,—such *e.g.*, as a contract between two traders—shall according to the attendant circumstances be considered either as a grave or trivial “Impropriety” and punished by the penalties provided in the law relating to “Improprieties” that is contained in the chapter on Miscellaneous Offences.

COUNTERFEITING OFFICIAL OR PRIVATE SEALS.

Revised
Code,
Sec. 248.

New Code,
“Counter-
feiting
Public
Seals.”

New Code,
“Counter-
feiting Private
Seals.”

Counterfeiting an official seal shall be punished by penal servitude for life if the seal be that of the Council of State; by penal servitude for 5 years if it be that of one of the chief public offices; by penal servitude for 1 year if any other public seal; and counterfeiting a private seal by penal servitude for 100 days. A mitigation of one degree shall be made in each of these penalties, if, though the seal has been counterfeited, the imitation has not yet been made use of, but in every case in which this offence is committed with a view to obtain fraudulent possession of any property it shall be treated under whichever of the laws of robbery apply to it, if the value of the property so obtained or attempted to be obtained is sufficiently high to render the offender liable to a more severe penalty than any herein contained.

COUNTERFEITING THE CURRENCY OF THE REALM.

Revised
Code, Sec.
249.

In all cases in which the offence of forging currency has been completed and the forged

coins have been put into circulation prior to its discovery, the principal, or he who contrived and suggested the offence, shall be punished by decapitation; the accessories, the artizans who manufactured the implements used in the commission of the offence, knowing the purpose (84) for which they were to be employed, the persons who assisted to circulate the forged coin, and also those who purchased and made use of it knowing that it was forged, shall be punished by penal servitude for life; and servants who have been employed in miscellaneous offices connected with the forging by penal servitude for 10 years. In all these cases a mitigation of one degree shall be allowed if the offence be discovered before the forged coin has been put into circulation; and, if it be discovered before the forgery is completed, the principal shall be punished by penal servitude for 3 years, the accessories and artizans by penal servitude for 2½ years, and the servants by penal servitude for 100 days. When the offenders repent and themselves give information of their crime to the authorities, they shall receive a free pardon if the coin, though counterfeited, had not been put into circulation, but, if it had been, a mitigation of one degree only in the statute punishment. The offence of clipping genuine coins shall be punished by penal servitude for 3 years, and that of altering the writing on the paper currency so as to make its value appear greater than it really is by penal servitude for 5 years. Whoever harbours coiners or lends a house to them knowing the purpose for which it is to be used, shall be punished as an accessory in their offence; and whoever knows that the offence is being committed but does not give information thereof to

Revised,
Code, Sec.
253.

Revised
Code, Sec.
250.

Revised
Code, Sec.
252.

Revised
Code, Sec.
254.

Revised
Code, Sec.
257.

the authorities, shall be punished as having committed a grave "Violation of Orders." Anyone, again, who finds that money which has come into his possession is forged and who uses it, instead of submitting it to the examination of the authorities shall be punished as having committed a "Grave Impropriety."

COUNTERFEITING WEIGHTS, SCALES, OR MEASURES.

New Code,
"Counterfeiting
Weights,
Scales, or
Measures."
Notification
No. 279 of
August 1st,
1873.

This offence shall be punished in the case of the principal by penal servitude for 5 years and for 3 years in that of the accessories. Altering weights, scales or measures (85) so as to make them either larger or smaller than they should properly be shall be punished by penal servitude for 1½ years, unless the offence be very trivial, when it may, according to the discretion of the judge, be treated either as a grave or trivial Impropriety.

FALSELY AND DECEITFULLY ADDRESSING THE SOVEREIGN.

New Code,
"Falsely and
Deceitfully
addressing
the Sovereign."

Revised
Code, Sec.
247.

Whoever in an address to the throne either delivered in reply to a Query, in respect to the discharge of official duties, or in the form of a memorial of any kind, is guilty either of the expression of falsehoods or of a failure to state the whole of the truth, shall be punished by penal servitude for 2 years. Similar offences committed in the cases of addresses to the Government shall be punished by penal servitude for 1 year, unless the deviation from, or suppression of the truth is very trivial, when the period shall be 80 days.

FALSELY REPRESENTING ONE'S SELF AS A GOVERNMENT OFFICIAL.

Any person who fraudulently represents himself as a Government official, who assumes the

name of a Government official, or who, falsely representing himself as the emissary of a Government department makes an arrest, shall be punished by penal servitude for $2\frac{1}{2}$ years; and any one who falsely represents himself either as the relative or servant of a person in office with the design of effecting some object on the strength of such relationship shall be punished by penal servitude for 90 days. If, however, the circumstances are of a trivial nature, the period shall in the first instance be reduced to 70 and in the second to 60 days, unless the fraud is used as a means of obtaining possession of any property, in which case the punishment shall be inflicted according to the law of common robbery, if on comparison it prove heavier than that (86) herein provided. Giving a false name and place of registration at a hotel shall be considered and punished as a "Trivial Impropriety."

Revised
Code, Sec.
259.

PRETENCE OF SICKNESS OR DEATH.

Any one who alleges a pretence of sickness with the view of escaping a difficulty or avoiding disagreeable duty shall be punished by penal servitude for 30 days, or for 70 days if the matter sought to be avoided were of importance; and any one who, with the design of escaping the punishment justly due to a prior offence committed by him, causes a false report of his death to be made shall be punished by penal servitude for $1\frac{1}{2}$ years, unless the penalty sought to be avoided was of a heavier degree, when it shall be the one inflicted. Any person again who, after an affray or quarrel, deliberately inflicts injuries on himself in order to lay the same to the charge of his adversary and thereby ensure an aggravation of the punish-

New Code,
"False Allegation of
Sickness or
Death."

ment justly due to the latter, shall undergo penal servitude for 70 days; and if he hires a third person to inflict such injuries, the latter shall be liable to the same punishment, and to penal servitude for 10 years if the injuries be of so severe a nature as to cause the death of the person on whom they were inflicted. In all cases any officials who connive at one or other of these frauds shall be punished as participators with the actual offenders.

INCITING PEOPLE TO TRANSGRESS THE LAWS.

New Code,
"Inducing
others by false
pretences to
transgress the
Laws."

All persons, who by uttering falsehoods incite others to offend against the laws, and then either themselves arrest and deliver to the authorities those whom they have so incited or cause another person to do so, shall be considered as participators in any offence that has been so committed at their instigation and punished accordingly.

CHAPTER X.

RAPE AND ADULTERY.

(87) The crimes detailed in this chapter may be arranged under the respective headings of Adultery, Incest, Rape, and Sodomy. They all come under the category of "extremely disgraceful offences", and nobles and *samurai* guilty of them are therefore not allowed the privileges of the supplementary punishments.

ADULTERY.

Both parties to the commission of the offence of adultery shall be punished by penal servitude for 1 year, and the husband of the offending female shall be liable to a similar penalty in the offence was committed at his instigation. An official guilty of the offence with the wife of a person under his jurisdiction, or a servant with the wife of his master, shall be punished for $1\frac{1}{2}$ years, the woman in the first of the two latter cases being punished by the ordinary penalty, but, in the second, by one equally severe with that inflicted on the male offender. A mitigation of one degree of punishment shall be allowed in all these cases if the offending female is a concubine and not a wife.

New Code,
"Sexual
Intercourse"
Revised
Code, Sec.
260.
Notification
No. 273 of
July 28, 1876.
Revised
Code, Sec.
262-3.

INCEST.

Incestuous intercourse with a father's or a grandfather's concubine, a paternal aunt, sister, or a son's or grandson's wife shall involve the punishment of penal servitude for 3 (88) years; with a maternal aunt or brother's or nephew's wife, that of penal servitude for 2 years; and with a niece, a wife's daughter by a previous

New Code,
"Sexual
Intercourse
between
Relations,"
Revised
Code, Sec.
261.

husband, or with a half sister, that of penal servitude for 1 year. As in the case of Adultery, both parties to the offence of Incest shall be punished by whichever of the penalties is applicable to their case, and in those instances in which 'wife' is mentioned, a mitigation of one degree of punishment shall be allowed to both parties if the offending female was concubine. On the other hand, if a woman who has been guilty either of adultery or incest is, on the discovery of her guilt, driven by a sense of shame to commit suicide, the punishment of the male offender shall be increased one degree even though he may have been entirely innocent of any knowledge of the woman's intention to do so.

Revised
Code, Sec.
265.

RAPE.

The crime of rape shall in ordinary cases be punished by penal servitude for 10 years, but if the female on whom the offence is committed be connected by any tie of relationship with the offender, or if any wounds be inflicted on her during the commission of the offence, the punishment shall be penal servitude for life. Sexual intercourse with a female under 12 years of age, even with her consent, shall in all cases be treated and punished as rape. Attempted rape shall be punished by a penalty one degree less severe than that which would have been inflicted had the offence been accomplished.

Revised
Code, Sec.
260.

Revised
Code, Sec.
261.

New Code,
"Sexual In-
tercourse."

SODOMY.

The crime of sodomy shall be punished by penal servitude for 90 days, and, if committed by mutual consent, both parties to the offence shall be punished unless the male on whom it is committed be under 15 years of age, in which case he shall be held guiltless.

Revised
Code, Sec.
266.

CHAPTER XI.

MISCELLANEOUS OFFENCES.

(89) Miscellaneous Offences are those the nature of which prevents them being included in any of the chapters devoted to the treatment of a particular class of crimes, and which are accordingly here collected into one special chapter. The absence of any similarity or connection between these several offences renders it impossible to adopt any further system of classification in summarizing them, and they are therefore simply detailed here in the same order as they occur in the original codes.

BREAKING OR DESTROYING GOVERNMENT NOTICE BOARDS OR NOTIFICATIONS.

Any person guilty of this offence shall be punished by penal servitude for 3 years.

New Code,
"Breaking
Notice
Boards."

TRAFFICKING IN OR SMOKING OPIUM.

Any one who, for the sake of the profit which he may thereby acquire, sells the poisonous drug known as opium regardless of the harm which it causes shall, if a principal in the offence, be punished by decapitation, and, if an accessory, by penal servitude for 10 years; and any person who purchases and uses it, by penal servitude for 2½ years. If, however, though the offender has purchased the opium with the intention of dealing in it, his offence be discovered before he has sold any portion of it, he shall be

New Code,
"Trafficking
in Opium."

punished by penal servitude for (90) 10 years if the principal, and for 3 years if the accessory in the offence. Any one, again, who incites or persuades another to smoke or eat opium shall be punished by hanging; those who are accessory to the offence or who have lent rooms wherein it might be committed, though well aware at the time of the uses to which the rooms were to be devoted, by penal servitude for 10 years, and those who, on being so incited or persuaded either eat or smoke opium, by penal servitude for 1 year. In all cases any opium which may be discovered in the possession of the offender shall be confiscated. Officials who connive at the commission of any of these offences shall be punished as participators with the actual offenders, but, if their connivance is ascribable to their having been bribed, then they shall be punished by the penalties contained in the law of Bribery for an Unlawful Object, if the amount of the bribe were such as to render the receiver liable to a more severe penalty than what is provided in the present law.

GAMBLING.

New Code,
"Gambling,"
Revised
Code, Sec.
269.

Revised
Code, Sec.
270.

Revised
Code, Sec.
272.

Revised
Code, Sec.
271.

Persons who gamble for stakes other than those of eatables or drinkables shall be punished by penal servitude for 80 days, or for 1 year if the offence be committed a third time, and the stakes shall, unless they consist of immoveable property, such as lands or tenements, be confiscated. Those who open a house for gambling purpose, although they may not actually take part in the gambling carried on therein, who lend money at interest while knowing that it is to be devoted to gambling, or who sell cards, dice, or other articles used for gambling, shall be punished as participators with the actual

offenders, and in the last mentioned of these three instances, repetition of the offence shall involve an increase of one degree of severity in the punishment, and a second repetition shall involve the punishment of penal servitude for 1 year.

PREFERRING SOLICITATIONS TO OFFICIALS ON PUBLIC MATTERS.

(91) Any person who with the view of procuring the commission of an injustice is guilty of preferring a solicitation in regard to a public matter to a Government officer, whether for his own advantage or that of another, shall be punished by penal servitude for 40 days. An official who assents to such a request shall be treated and punished as a participator, unless he has not only given his assent but actually committed the injustice desired, in which case he shall be punished by penal servitude for 90 days or by such heavier penalty as he would be liable to if his offence were treated under the law of "Pronouncing an Unjust Decision" that is contained in the chapter on "Judgment and Imprisonment." When the nature of the injustice is such as would render the official complying with the request liable, according to the provision last mentioned, to any penalty heavier than that of penal servitude for 40 days, the proposer shall, if the request have been preferred on behalf of a relative or other third person, be punished by a penalty three degrees less severe than that inflicted on the offending official; but, if it has been preferred on his own behalf, a mitigation of two degrees only shall be allowed. In any case in which the injustice has been avail-

New Code,
"Preferring
solicitations
on public
matters."

Revised
Code, Sec.
278.

a master by whom he has been harshly re-
proved. If the crime be committed in the
case of an empty house or in that of grain,
etc., stored up in fields, it shall be punished
by penal servitude for 7 years, and by penal
servitude for 10 years if the fire extended to
inhabited houses, even though the offender
may not have intended that it should. An
attempt in either of these cases shall be punished
by penal servitude for 3 years. Any one, again,
who wilfully sets fire to his own house shall be
punished by penal servitude for 90 days, a
mitigation of one degree being allowed in the
case of an attempt only; but if the fire after-
wards extends to other houses the punishment
shall be increased to that of penal servitude
for 2½ years, and to penal servitude for life if
the offender profits by the opportunity afforded
by the fire to purloin any goods or property.

Revised
Code, Sec.
279.

Revised
Code, Sec.
280.

MAKING AWAY WITH PROPERTY THAT HAS BEEN

ENTRUSTED FOR SAFE KEEPING.

New Code,
"Making
away with
property that
has been re-
ceived into
charge."

Any person who secretly dissipates or makes
away with any property, whether in the shape
of live stock or goods that has been given into
his charge for safe keeping shall be liable
to a punishment one degree less severe than
that provided for the crime of "Pecuniary
Malversation," but limited to penal (94) servi-
tude for 2½ years; and, if he falsely alleges
that such live stock is dead, he shall be liable
to a punishment two degrees less severe than
that provided for "Common Robbery," but
limited to penal servitude for 3 years, the
property in either case to be restored to the
rightful owner. No proceedings are, however,
to be taken when such property is lost either
by fire or water, or by death in the case of live

stock, or when it is stolen from the person to whose keeping it had been consigned.

DETENTION OF LOST PROPERTY.

Any person who finds lost property must restore it to the owner, or, if the owner be unknown, hand it over to the care of the police authorities, within a period of 5 days, from the date on which he found it, otherwise he will be liable to a punishment, according to the value of the property, one degree less severe than he would have been had he been guilty of common robbery of a similar amount. A description of the property will be published by the police and, if it remains unclaimed for the space of 1 year, the whole of it shall be given to the finder; but if within that period the owner proves his claim to it, it shall be handed to him, subject to a deduction of not less than five and not more than twenty per cent of its value, which shall be given to the finder as a reward. No person in the employment of the Police Department in any capacity whatsoever shall be entitled to this reward, and any property found by such persons will be handed to the owner without any deduction whatsoever.

Notification
No. 55, April
19, 1876.

TRANSGRESSION OF PROHIBITIONS, STANDING ORDERS OR POLICE REGULATIONS.

Any person who offends against a prohibition shall be punished by penal servitude for 100 days; any one who offends against a standing order by penal servitude for 40 days; and any one who offends against a police regulation, by penal servitude for 20 days; a mitigation (95) of one degree shall, however, be allowed in each of these cases when the transgression is of a trivial nature. Examples of the offence of

New Code,
"Transgression
of orders."
Revised Code,
Sec. 287-288.

"Transgression of a Prohibition" are "Breaking or injuring the relics in the great Shrines," "Carrying on a Lottery," "Torturing a prisoner in an illegal manner;" of that of a "Transgression of Standing Orders"—"Wilful evasion of the conscription," "Lending one's seal to another," etc.; and of those against the Police Regulations "Tattooing the body," "Selling adulterated or decayed food or liquor, or obscene books or pictures," "Passing places where 'No Thoroughfare' is marked," "Exposing the naked body," "Cutting the telegraph wires," "Dog fighting," "Chair coolies using insolent language," "Women cutting their hair short without any particular reason for doing so,"* etc.

IMPROPRIETIES.†

Any act to which there may not be a specific section in the codes applicable but which is New Code, "Improprieties."

* In this case it is of course to be remembered, that the offender being a female, would have the privilege of commuting the term of penal servitude by the payment of a fine calculated according to the table in the section "Indulgences to Commoners" that is contained in the "General Laws." The same privilege is now extended to male offenders in the case of the more trivial offences against the Police Regulations.

† An illustration of the application of this law was recently afforded in the case of a charge that was preferred, through H.B.M.'s Legation, against a druggist in Yedo of counterfeiting the manufacturer's labels, and also the English Inland Revenue stamp, on the bottles containing Dr. J. Collis Browne's chlorodyne, and affixing them to a spurious compound made by himself which he sold as genuine. This offence was decided to be a "Serious Impropriety" and the druggist was punished accordingly by penal servitude for 70 days. The head of the engraving company by which the counterfeits were made, and the artizan who actually made them, were both adjudged to be accessories, and sentenced to penal servitude for 60 days, but in the case of the latter the judge availed himself of the discretionary power vested in him, and "in consideration of the circumstances" allowed a mitigation of one degree, thus reducing the punishment to penal servitude for 50 days. The profit which all three had acquired by the commission of the offence—the druggist by the sale of the spurious medicine, and the engravers by manufacturing the labels—was confiscated under the law of "Restitution and Forfeiture of Stolen Goods."

nevertheless clearly in violation of propriety and justice, shall be considered an Impropriety, and the person guilty of it shall be punished by penal servitude for 30 days, or 70 days if (96) the act be of a serious nature. The usual distinction between principal and accessory shall be observed, when two or more persons together commit an offence coming under this law, but if their respective degrees of guilt be such that some are liable to be punished for a serious and others only for a light impropriety, this distinction and not that of principal and accessory shall be observed in passing sentence.

* The offences of breaking idols, disseminating false and malicious or alarming reports and of publishing any written matter that causes difficulties in the administration of the Government, shall be dealt with as serious Improprieties.

Revised
Code, Sec.
289.

Revised
Code, Sec.
290-291

CHAPTER XII.

ARREST.

(97) The laws in this chapter detail the penalties that are to be inflicted (1) on police officers and jailors who fail to execute properly a warrant of arrest ; who, in effecting an arrest, use an unnecessary amount of violence, or who fail to prevent the escape of criminals from custody ; (2) on criminals who, when being arrested, resist police officers, or who run away from custody or abscond from the convict depots to which they have been remitted ; and (3) on those persons who conceal persons for whose arrest warrants have been issued or who assist prisoners to escape.

FAILURE TO EXECUTE A WARRANT OF ARREST.

New Code,
"Arrest of
criminals."

A police officer who, having received a warrant for the arrest of a criminal, excuses himself on any pretext whatsoever from executing it, or who fails to arrest any criminal with whose whereabouts he is acquainted, shall be punished by penal servitude for 100 days ; and one who wilfully connives at the escape of a criminal from whom he has received a bribe, shall be punished either by the penalties to which he is liable as a participator in the offence of which the criminal was originally guilty or else by those contained in the law of "Bribery for an Unlawful Purpose," according as the former or the latter may be found to be the most severe in

each particular instance, but (98) the punishment is in no case to exceed that of penal servitude for life. An officer shall also be punished as a participator in the guilt of a criminal if, though he receives no bribe, he connives at the criminal's escape, or sends him such information of the steps that are being taken for his arrest as enables him to effect his escape, but the punishment shall not in this case exceed that of penal servitude for 10 years.

Revised
Code,
Sec. 292.

MALTREATING PRISONERS.

If a police officer causes the death of or inflicts cutting wounds on a criminal whose arrest he is effecting and who offers no resistance, or who, though he has attempted to run away, has been already secured, he shall be liable to the punishment provided in the law of "Quarrelling and Fighting," for killing or wounding in an affray, unless the criminal had been guilty of a capital offence, in which case an officer killing him in a momentary fit of anger shall be liable only to the punishment of penal servitude for 90 days. No penalty, whatsoever, shall attach to an officer if he kills an armed criminal who is resisting arrest, or one who is running away from custody, or if a criminal whom he has pursued and brought to bay destroys himself.

New Code,
"Criminals
resisting ar-
rest."

FAILING TO PREVENT THE ESCAPE OF PRISONERS.

Prison guardians and superintendents who, by remissness, fail to prevent the escape of prisoners from custody shall be punished by penal servitude for 40 days, unless the escape has been effected by prison breaking, when mitigation of one degree of severity shall be permitted, or unless the prisoner is re-arrested within a period of 30 days, when a mitigation of two degrees of

New Code,
"Guardians
and superin-
tendents
failing to
notify the
loss of pri-
soners."

Revised
Code, Sec.
309.

Revised
Code, Sec.
308.

severity shall be permitted. Those who, failing to exercise proper supervision over untried criminals, allow the latter to commit suicide, shall be punished by penal servitude for 30 days; and (99) those who wilfully connive at the prisoner's escape whether on account of their having been bribed or other reason, shall be punished as participators in the offence of which the escaped prisoner was originally guilty, or, in cases where they have been bribed, by such heavier penalty as the law of "Bribery for an Unlawful Purpose" would render them liable to. If, however, in either of the latter instances, the prisoner is re-arrested either by the culpable officer or another person, or if he dies or voluntarily surrenders himself to the authorities, a mitigation of one degree of severity shall be allowed. No penalties shall attach to jailers whenever they are overpowered by a number of brigands who break into a prison and rescue the prisoners. Persons, not officially employed as jailers, into whose charge a criminal has been handed for safe keeping shall, if they suffer such criminal to escape, be punished by a penalty two degrees less severe than that above provided for jailers who fail to prevent the escape of prisoners.

PRISONERS ESCAPING FROM CUSTODY OR RESISTING POLICE OFFICERS.

New Code,
"Persons
in custody
absconding or
breaking out
of prison."

A criminal who absconds after a charge has been formally laid against him, or who, at the time of his arrest, offers resistance to the police officers, or who, after having been replaced in custody, takes advantage of an opportunity afforded by the remissness of his jailers to abscond, shall be punished by a penalty two

degrees more severe than that to which he would have been liable for his original offence had he not been guilty of the absconding or resistance, but this aggravation of punishment shall not be made if by it the sentence would be rendered heavier than that of penal servitude for 10 years. If, however, the criminal carries his resistance so far as to inflict cutting wounds on the police officer arresting him, he shall be punished (100) by hanging, and if he kills such officer, or if he combine with others in custody to effect his escape by violently breaking out of prison, by decapitation. Accessories shall in all these case be allowed the usual mitigation of one degree of severity. A similar mitigation in the punishment due to the crime for which a prisoner was in the first instance placed in custody shall, provided it was not of a capital nature, be allowed to him if, though he has escaped from custody during the confusion incidental to a conflagration, flood, or earthquake, he afterwards voluntarily returns, or if, by giving true and timely information he prevents the execution of a plot on the part of his fellow prisoners to break out of prison. An offender, who absconds from the custody of relatives or other guardians to whose safe keeping he has been consigned, shall suffer an increase of one degree of severity in the punishment of his original offence, but neither in this nor in any of those cases previously mentioned shall any increase be made in the punishment originally due to an offender, who, though he has absconded from custody, voluntarily returns and surrenders himself to the authorities.

Revised
Code, Sec.
293.

Revised
Code, Sec.
294.

Revised
Code, Sec.
295.

The punishment that shall be inflicted on a convict, who having been sentenced to a term of penal servitude and remitted to the convict

New Code
"Convicts
absconding."

depôt absconds and endeavours to escape therefrom before the expiration of his term, varies according to the degree of that which had been inflicted on him for his original offence. In all cases the term of penal servitude to which he was originally condemned shall, without regard to any portion of it which he may have worked out prior to absconding, commence to be computed anew from the date of his recapture and return to the dépôt. He shall, in addition to this, be liable to the following additional penalties :—

Revised
Code, Sec.
299.

If his original sentence did not exceed penal servitude for 100 days he shall on recapture be placed in the pillory for 1 day, and if he (101) repeats the offence of absconding shall be punished by being placed in pillory for 2 days and by having his original sentence changed into that of penal servitude for 1 year dating from the day of his recapture. If, in addition to absconding, he is, while at large, guilty of a fresh offence punishable by any period of penal servitude not exceeding 100 days, he shall on recapture and conviction be sentenced to the full term of the punishment provided for both the original and second offences, but, if the fresh offence be one punishable by a term of penal servitude for 1 or more years, then on recapture and conviction the punishment due to the second offence only shall be imposed. If, again, his original sentence was that of penal servitude for a term of not less than 1 and not more than 3 years, he shall on recapture be placed in pillory for 2 days, and, if he abscond a second time, the original sentence shall be changed into that of penal servitude for life. If, in addition to absconding, a convict of this class is while at large guilty of a

Revised
Code, Sec.
298.

Revised
Code, Sec.
300

fresh offence involving a punishment of penal servitude for a term not exceeding 3 years, he shall on recapture and conviction be condemned to undergo the full punishments due to both the original and fresh offences, provided that when the periods thereof are added together, the total does not exceed 4 years. If, however, the offence committed while the convict is at large is one punishable by a period of penal servitude for 5 or more years, then, on recapture and conviction, the balance of punishment due to the original offence shall be disregarded and that due to the second only inflicted. If, again, the original sentence was that of penal servitude for 5 or more years, the convict shall on recapture be placed in pillory for 2 days. If in addition to absconding, he is while at large guilty of a fresh offence involving punishment of penal servitude for a term not exceeding 100 days, he shall on recapture and conviction be sentenced to the full term of both punishments. If, however, the term of that provided for the fresh offence is not less than 1 and not more than 3 years, half of it (102) only should be added to that of the original sentence, and if it is not less than 5 and not more than 10 years, 4 years only shall be added to the term of the original sentence. Lastly a convict undergoing a sentence of penal servitude for life, shall on recapture be punished by pillory for 3 days and by hanging if he repeats the offence.

Revised
Code, Sec.
301.

In all cases in which an absconding convict voluntarily surrenders himself, any additional or aggravated punishment (such as being placed in pillory) to which he had rendered himself liable by absconding shall be remitted, but the period of his original sentence shall commence

Revised
Code, Sec.
302.

Revised
Code, Sec.
305.

Revised
Code, Sec.
306.

Revised
Code, Sec.
304.

Revised
Code, Sec.
307.

to be computed anew from the date of his return to the dépôt, and if again he voluntarily gives information of and confesses a fresh crime which he has committed while at large, the penalties for absconding only shall be inflicted on him and the aggravation of punishment to which he would otherwise have been liable in respect of the fresh crime shall be remitted. A convict, on the other hand, who is arrested while endeavouring to abscond but before he has succeeded in getting beyond the precincts of the dépôt, shall be punished only by being placed in pillory for one of the several periods above specified. No penalties shall be inflicted on convicts who escape from the dépôt during the confusion that is incidental to a conflagration, flood, or earthquake, provided they return and surrender themselves within 24 hours, but, if they fail to do so, they shall be placed in pillory for 2 days and in addition caused to work up anew such period of their sentence as they may have been absent from the dépôt. Those who, on the occurrence of any of the above calamities, do not abscond but remain in the dépôt and render effective aid, and also those who by giving timely information enable effective measures to be taken to prevent other convicts who have planned an escape from carrying their design into execution, shall receive the indulgence of a mitigation of one degree of severity in the punishment which they were undergoing.

(103) A penalty analagous to that provided for convicts absconding from the dépôt shall be inflicted on any person who while undergoing the supplementary punishment of Imprisonment in his own house violates any of the conditions attached thereto, such as by secretly going

abroad on any pretence or by conversing or communicating with outsiders. The period of Imprisonment shall in such case commence to be computed anew from the date on which he was guilty of this transgression.

AIDING AND ABETTING THE ESCAPE OF PRISONERS.

Any person who, unless forced to do so by threats of violence, conceals in his house an offender with whom he is unconnected by any ties of relationship, and against whom he knows a charge has been formally laid or for whose arrest a warrant has been issued, instead of arresting and delivering him up to the authorities, or who points out a way of escape to such an offender or assists him with food or clothing, shall be punished by a penalty two degrees less severe than that due to the original offender, but he shall be allowed a further degree of mitigation if the offender is subsequently arrested or voluntarily gives himself up or dies, and a free pardon if he himself effect such arrest prior to the infliction of punishment under this law. If, however, when the assistance is given a warrant of arrest has not yet been issued, or if, though issued, the person giving the assistance is not aware of it, the offence shall be punished only as an 'Impropriety,' grave or trivial according to the attendant circumstances.

New Code,
"Concealing
Criminals."

Revised
Code, Sec.
311.

CHAPTER XIII.

JUDGMENT AND IMPRISONMENT.

(104) In the trials of persons for criminal offences the following routine is observed.

As soon as the arrest has been effected a formal charge is drawn up by the public prosecutor, or, in the absence of such an officer, by the chief local authority, based upon the written information of the offence that has been given by the police authorities by whom the arrest has been made. This charge is laid before a magisterial officer, who then proceeds with the investigation, commencing by subjecting the prisoner himself to a severe examination. If during this examination an admission of his guilt can be obtained from the prisoner no witnesses are called, but, if not, the prosecutor is ordered to produce such evidence as he may be prepared with, the witnesses being always examined by the presiding officer and their depositions drawn up by him. On the conclusion of the investigation the prisoner may, if sufficient evidence to warrant a presumption of his guilt has not been obtained, be released from custody, or he may, if his offence has been of a very trivial nature, be punished for it forthwith, or he may be committed for trial. In the latter case he is forwarded to the principal local court of the prefecture within the jurisdiction of which his arrest has been made, the charge laid by the public prosecutor and the record of the preliminary examination being sent along with him. The Courts consist of president, judge, examining officer, and clerk, though the duties of two of these officers may

occasionally be discharged by one person. At the second trial the prisoner is submitted to a more searching examination than that which he underwent in the first (105) instance, and, as before, if a full acknowledgment of the crime with which he is charged can be extorted from him no witnesses are called. When, however, the prisoner refuses to admit the charge, and, at the same time fails to adduce in his defence such proof, circumstantial or otherwise, as may satisfy the examining officer of his innocence of that which he refuses to confess, then witnesses are called and confronted with him. If their testimony is such as to establish his guilt, he may be condemned even though he still persistently asserts his innocence. Where, however, the evidence is only sufficient to raise a very strong suspicion against him, an attempt is made to elicit the truth by subjecting him to a further examination, and, though it is now generally admitted that the use of torture has been practically abolished in the Japanese Courts, so far from there being any law absolutely forbidding its use during this examination, the right of resorting to it would seem to be still recognized by the retention in the codes of a section in the preliminary matter minutely describing the implement* that is to be used in examination by torture, and of sections in the present chapter which provide punishments for an officer who causes the torture of a person whom he knows to be innocent, or of person of advance or tender years, or of pregnant women. When the examining officer is satisfied that he has ascertained the whole truth of the case, he causes the clerk, who besides the prisoner, jailers, and witnesses while actually giving evidence has been the only person present in court during the trial, to draw up a full statement of it, which he submits to the judge. The judge after due consideration

* This implement (which is called in the code the "Investigation whip") is a whip three feet in length, one and a half inches in circumference and half an inch in diameter. It is made of three strips of bamboo, the knots of which have been planed off, bound tightly together with hempen rope.

pronounces the crime of which the prisoner is guilty, decides whether any of the special provisions contained in the General Laws apply to it, and also whether the crime has been committed under the influence of such extenuating circumstances as provocation, necessity, or temptation that he is justified in exercising his right of mitigating the punishment provided in the statute applicable to the case. The sentence having been drawn up by the judge and approved of by the president is read to the prisoner, and immediately put into execution unless the offence has been a capital one, when the sentence must be (106) submitted to the Emperor and his approval of it obtained before it is pronounced.

The crime of making false accusation has already been treated of and the penalties for it fully detailed in the chapter "Indictments and Informations." The other offences which can be committed in respect to the trials of prisoners on criminal charges are detailed in the present chapter and are as follows: "Imprisonment of and Procedure against Innocent Persons," "Wilfully Pronouncing an unjust Sentence," "Torture of persons of advanced or tender years," "Improper examination of the body in cases of Homicide." "Execution of a capital sentence without awaiting the Emperor's consent," and "Offences connected with the trial of women."

IMPRISONMENT OF AND PROCEDURE AGAINST INNOCENT PERSONS.

New Code,
"Wilfully
confining an
innocent
person."

Any official who, instigated by private malice, designedly commits to prison a person who he knows is innocent of any offence, or who tortures such person with a view of extorting an admission of guilt, shall, even though no apparent bodily injury be caused to the person tortured, be punished by penal servitude for one year; by hanging if the falsely accused person's death result from such imprisonment; by decapitation if his death result from the

application of torture, and by the punishment provided in the law of Assault increased two degrees for any injuries not terminating in death that the application of torture may cause to the accused. In all these cases the colleagues of the official so offending and the prison officers shall, if while privy to his illegal conduct they fail to prevent and give information of it, be treated as participators in the offence and punished accordingly. An official, who by excessive torture of a criminal under examination forces him to make an accusation against an innocent person, shall be punished by the penalties contained in the law next following.

New Code,
"Causing a
criminal to
accuse an
innocent
person."

PRONOUNCING AND EXECUTING AN UNJUST SENTENCE.

(107) The Japanese Courts, as has been already seen, consist of the clerks, examining officers, judges and presidents, and a sentence before being pronounced has to pass through the hands of all these officers. When, therefore, an unjust sentence is wilfully and designedly pronounced and executed, whether the injustice consist of acquittal and dismissal of a prisoner who ought to have been convicted and punished, or of the conviction and punishment of a prisoner who ought on the contrary to have been acquitted and dismissed, guilt attaches to the whole four of these officers, but the one from whom the offence arose in the first instance shall be considered as the principal and shall undergo the full amount of the punishment which was when it ought not to have been, or was not when it ought to have been, inflicted. The other officers shall be considered as accessories in the offence, and allowed successive degrees of mitigation in accordance as their share of the responsibility in the original in-

New Code,
"Releasing
and confining
criminals."

justice many become smaller. Thus, for example—if the injustice be ascribable to the clerk having in the first instance deliberately falsified the statement of the case, he shall be considered as the officer primarily responsible and punished for the full extent of the injustice committed. The examining officer, being the officer who stands next in point of responsibility shall be punished by a penalty one degree less severe than that inflicted on the clerk; the judge, who stands next, by one two degrees less severe, and the president, whose share in the responsibility is least, by one three degrees less severe. These penalties shall, however, only be inflicted on the officers responsible in a minor degree when they are guilty of the injustice, while aware of the deliberate falsification committed by the clerk in the first instance. A judge who, misled by a false statement submitted to him by a clerk, pronounces in good faith a sentence which, though unjust, is nevertheless applicable to the case as (108) described in the clerk's statement, shall be liable to no penalty. The same rule shall be observed in the case of a sentence which is only partially unjust—that is which either falls short of or exceeds to a certain extent the sentence which the laws applicable to the circumstances of the case justify. The offending officers shall in this instance be punished only for such amount as the sentence unjustly passed by them may have exceeded or fallen short of that which ought properly to have been inflicted, unless in those cases in which a capital sentence has been improperly passed, when the officer principally responsible shall be punished by death, and no mitigation permitted in consideration of the prisoner having been guilty in a minor degree.

These provisions may be best understood by the following examples of their application, contained in the preliminary matter of the codes.

a.—A sentence of penal servitude for 20 days is passed on a prisoner justly liable to one of penal servitude for 10 years and for the injustice the examining officer of the Court is primarily responsible. The punishment to be inflicted on him for this injustice is that of penal servitude for 10 years, the equivalent of which (according to the system of calculation already explained in the Chapter "Indictments and Informations") is 540 blows. From this 20 are to be deducted as the equivalent of the period of 20 days to which the prisoner was actually sentenced, and the equivalent of the remaining 520 blows is the punishment which the examining officer is to undergo. There being however no term of penal servitude equivalent to this number of blows, the equivalent of that which stands nearest, in point of severity is taken instead and the examining officer sentenced accordingly to penal servitude for 7 years. The officer who stands next in point of responsibility is the judge, and his punishment shall be mitigated one degree and therefore be penal servitude for 5 years; that of the president of the Court shall be mitigated (109) two degrees and therefore be penal servitude for 3 years, and that of the clerk three degrees, and therefore be penal servitude for $2\frac{1}{2}$ years.

b.—A sentence of penal servitude for 2 years is passed on an offender justly liable only to one of penal servitude for 10 days, and the punishment is undergone by the prisoner before the discovery of the injustice. Penal servitude for 2 years is equivalent to 240 blows, and 10 being deducted as the equivalent of the punishment to

which the prisoner was justly liable, the equivalent of the remaining 230 blows is to be required on the officer primarily responsible for the injustice. There being, however, no term of penal servitude intermediate between 2 years, the equivalent of 240 blows, and $1\frac{1}{2}$ years, the equivalent of 180 blows, the 50 blows by which those to be required on the officer exceed this latter number are to be deducted, and a sentence of penal servitude for $1\frac{1}{2}$ years only passed. If, again, the injustice be discovered before the prisoner has undergone punishment, then one degree of mitigation is to be allowed and the sentence reduced accordingly to penal servitude for 1 year.

c.—A capital sentence is wilfully passed on an offender justly liable only to a term of penal servitude. If the sentence has been carried out before the discovery of the injustice then the officer primarily responsible for it shall be put to death, no account, whatsoever, being taken of any punishment to which the offender had been justly liable.

TORTURE OF OFFENDERS OF ADVANCED OR TENDER YEARS.

Now Code,
"Aged persons
and youths are
not to be tortured."

All offences charged against persons above the age of 70 or under that of 15 years, as well as against those who are either maimed or deformed, are to be determined upon the evidence of circumstances and witness, and any officer who puts to the torture persons of any of the above classes, shall be liable to the same punishment as if he had wilfully and (110) designedly pronounced an unjust sentence upon them. No relative within the degree of relationship that would justify him in cloaking the guilt of the accused, no persons over 80 or under 10 years

of age, and no one who is deformed can be admitted or called upon as a witness. Any witness, again, who deliberately falsifies his testimony, shall receive punishment two degrees less severe than that to which the prisoner at whose trial the false testimony is given is justly liable.

IMPROPER EXAMINATION OF THE BODY IN CASES OF HOMICIDE.

An officer who makes a false report of the examination which he has held on the body of any person deceased shall be punished by penal servitude for 40 days, and if, owing to such false report, the guilt of a person accused of homicide is either aggravated or mitigated unjustly, the offending officer shall be punished by the penalties provided in the law of Pronouncing an Unjust Sentence. If, however, the officer has been bribed to falsify the report he shall be liable to the punishment of Bribery for an Unlawful Purpose if the amount which he has received would render him liable to a more severe penalty than any of those contained in this section.

Revised Code
Sec. 315.

EXECUTION OF A CAPITAL SENTENCE WITHOUT AWAIT- ING THE EMPEROR'S APPROVAL.

An officer guilty of this offence shall be punished by penal servitude for 70 days, and if a capital sentence is carried out on any of the Emperor's fête days or other day on which such is forbidden, the officer responsible therefore shall be punished by penal servitude for 30 days.

New Code,
"Not awaiting
the Emperor's
reply to the
report of the
punishment of
a capital offen-
der."

OFFENCES CONNECTED WITH THE TRIAL OF WOMEN.

(111) Women shall not be committed to prison pending trial unless for serious offences. In

New Code,
"Female
offenders."

other cases they shall be given into the custody of their husband, if married, and, if not, into that of their relatives or friends who shall be held answerable for their appearance. Officers violating this law shall be punished by penal servitude for 30 days. Pregnant women whom it may be necessary to torture are to be given into the custody of their husbands, and the torture is not to be inflicted until the lapse of 100 days after delivery. An officer violating this law shall be punished by penal servitude for 90 days, for $1\frac{1}{2}$ years if the infliction of the torture produces a miscarriage, and for 10 years if the woman dies under it. A pregnant woman, on whom a capital sentence has been passed shall, after she has been examined by a midwife, be placed in confinement until the time of her delivery draws nigh, when she shall be given into the custody of her relatives, and the sentence shall not be carried out until the lapse of 100 days after her delivery. An officer violating this law by causing the sentence to be executed before delivery shall be punished by penal servitude for $1\frac{1}{2}$ years, and for 80 days if he has caused the execution before the lapse of 100 days subsequent to the delivery.

IMPRISONMENT.

The offence connected with the imprisonment of offenders and the penalties that are to be inflicted on those guilty of them are as follows :

New Code,
"Cruel treatment of prisoners."

Beating of prisoners by warders or other prison officials shall be punished by the penalties contained in the law of assault, and deprivation of the necessary food and clothing by those contained in the law of embezzlement according to the value of that of which the prisoner may have been so deprived, the penalty in all

cases to be hanging if the prisoner's death be brought about either by beating or deprivation of food and clothing.

(112) Supplying edged tools or other means of escaping or committing suicide to prisoners, shall be punished by penal servitude for 100 days, by penal servitude for 1 year if the prisoner by the aid of the tools supplied to him succeeds in effecting his escape, or in doing an injury to himself or any one else, and by penal servitude for 2 years if he commits suicide or kills another person. Prison officials assisting to transmit money or other forbidden articles to prisoners shall be considered as guilty of a "serious violation of standing orders."

New Code,
"Supplying
edged tools
to prisoners."

Revised
Code, Sec.
313.

Encouraging or inciting prisoners to appeal against a just and lawful sentence, or assisting in communicating with persons outside the prison for a like purpose, shall be punishable according to the extent of diminution of the prisoner's offence which it thereby designed to effect, by the same penalty as though a sentence wilfully unjust to that extent had been pronounced.

New Code,
"Encouraging
criminals to
distort the
truth."

A mitigation of one degree is to be allowed in the penalties prescribed in the above cases when the offender is not a prison official.

POSTSCRIPT.

(113) By a recent Notification (No. 25 of March 2, 1877) the following mitigations have been made in the punishments that are provided in the respective laws as those to be inflicted on persons guilty of the commission of any of the undermentioned offences.

VIOLENT ROBBERY WITHOUT WEAPONS.

The penalty of hanging provided as that to be inflicted on a person who, while engaged in the commission of this offence, is guilty of wounding another, has been altered to that of penal servitude for life.

VIOLENT ROBBERY WITH WEAPONS.

The penalties of hanging and of penal servitude for life provided as those to be inflicted on the principal and accessory in the case of an attempt to commit this offence, have been altered to those of penal servitude for life in the case of the principal and for 10 years in that of the accessory. The penalty of decapitation provided as that to be inflicted on all persons who, in an attempt to commit this offence are guilty of wounding another or others, or who, though they are not guilty of wounding, succeed in accomplishing the robbery, has in each case been altered to penal servitude for life, as has also the penalty of hanging which is provided for persons who, while committing a robbery, are guilty of rape or attempted rape.

COMMON ROBBERY.

(114) The penalty of hanging provided as that to be inflicted on a person who, while committing a common robbery, accidentally causes the death of another has been altered to that of penal servitude for life.

COINING.

The penalty of decapitation provided as that to be inflicted on the principal to this offence, if it has been completed and the coins put into circulation, has been altered to that of penal servitude for life; that of penal servitude for life which is provided for the accessories, artizans, and persons guilty of purchasing and circulating the forged coins, to that of penal servitude for 10 years; and that of penal servitude for 10 years provided for servants employed in miscellaneous offices connected with the coining to that of penal servitude for 7 years.

ARREST.

The penalty of hanging provided as that to be inflicted on any one guilty of wounding an officer making an arrest, or on a convict who, while undergoing a sentence of penal servitude for life, makes a second attempt to escape, has been altered to that of penal servitude for life in the first instance, and to that of pillory for 10 days in the second.

(385)C





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